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A COMPARATIVE ANALYSIS OF ARMY PHYSICAL READINESS TEST RESULTS OF AMEDD UNITS WITH  
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This study was conducted to determine if soldiers assigned to AMEDD units with no formal physical training programs achieving the same level of physical fitness as soldiers assigned to AMEDD units with formal physical training programs. This study found that soldiers assigned to AMEDD units with formal physical fitness programs achieved statistically significant higher levels of physical fitness. The overall differences are attributable to specific differences in particular categories. Across all age and sex categories, soldiers with a formal program achieved better times in the two mile run. A formal PT program does not produce consistent, significantly higher sit-up and push-up results. These (KT) R

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UNITS WITH FORMAL PHYSICAL TRAINING PROGRAMS AND AMEDD  
UNITS WITHOUT FORMAL PHYSICAL TRAINING PROGRAMS

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## I. INTRODUCTION

### Development of the Research Question

#### Conditions Which Prompted the Study

"The readiness of the United States Army begins with the physical fitness of the individual soldier, the non-commissioned officer, and the officers who lead them."<sup>1</sup> This charge, by John O. Marsh, Jr., Secretary of the Army, was given on 8 February 1982 during an address to the Committee on Armed Services, House of Representatives, 97th Congress. To further emphasize the Army's commitment to physical fitness, Secretary Marsh designated 1982 as the year of physical fitness.

From a historical perspective, every war in which the Army has been involved since the Civil War has revealed the physical deficiencies of soldiers during the initial mobilization phases. These "lessons learned" have prompted the Army leadership to emphasize the physical readiness of the soldier, for history has proven that physical fitness cannot be emphasized during wartime and ignored during peacetime.<sup>2</sup> In doing so, Secretary Marsh stressed that "all soldiers must be professionally and personally committed to physical fitness so that they are capable of performing their duties in peace or war at the highest level of physical conditioning. This physical conditioning should promote

and develop stamina, endurance, strength, flexibility, reaction time, coordination, speed, self-confidence, self-discipline, fighting spirit and a healthy lifestyle."<sup>3</sup> From these outcomes of physical conditioning, the concept of "Total Fitness" has emerged.

Total Fitness (often referred to in the literature as "wellness") includes more than the traditional physical fitness program. It is actually a composite lifestyle which embodies the components of exercise, weight control, proper nutrition, stress reduction, smoking cessation and control of abused substances.<sup>4</sup>

The Surgeon General of the Army is committed to the Total Fitness concept and has directed that the Army Medical Department (AMEDD) assist the Army in all medical aspects of the Total Fitness Program. A task force titled "The Surgeon General's Task Force on Physical Fitness" was established at the Department of the Army level to advise the Surgeon General in matters pertaining to the planning and execution of programs and policies pertaining to physical fitness in the U.S. Army. At the Medical Activity (MEDDAC) and Medical Center (MEDCEN) level, Health and Fitness Advisory Teams (HFAT) have been established. These teams, composed of key medical personnel, plan and coordinate the medical input to an installation's Total Fitness Program. The establishment of the HFATs represents the beginning of a new era for both the AMEDD and the Army in the realm of Total Fitness. The AMEDD has been charged to take an aggressive, positive approach in the education and motivation of all personnel to the importance of a healthy lifestyle.<sup>5</sup> Naturally, the Surgeon

General desires that every member of the AMEDD personally adopts a Total Fitness lifestyle, and in so doing sets an example for the rest of the Army to emulate.

Within the framework of Total Fitness in the U.S. Army, the components of physical fitness and weight control appear to receive more emphasis from the command structure when compared to the other components of Total Fitness. The reason for this occurrence is that both physical fitness and weight control are easily measured and monitored. Minimum standards in both areas are dictated by regulation and must be achieved by all soldiers in order to remain on active duty. Another reason is that physical fitness is an integral part of many units' daily training regimen.

With the emphasis now on Total Fitness, the Army's physical fitness program has encountered change. The program is now centered around individual conditioning, which is a distinct departure from previous physical fitness programs. Individual programs account for differences in age and sex, and enable soldiers to establish personal goals in addition to unit goals. The ultimate successful program occurs when a soldier understands that fitness is good for them personally as well as for the Army.<sup>6</sup>

Within the U.S. Army, the component of physical fitness is governed by AR 350-15. This regulation directs that all Active Army personnel participate in physical fitness programs year-round; either in collective training programs (formal training programs), or individually paced programs. The emphasis is on the conduct of regularly scheduled (3-5 times per week)



physical fitness activities. The program is developed and implemented by the unit commander and must prepare the soldier, both physically and mentally, for combat.<sup>7</sup>

A typical physical training (PT) program consists of conditioning drills (exercise) and a two mile run conducted at least three days per week. The program is designed to develop and enhance three distinct areas of conditioning: cardiorespiratory endurance (aerobic fitness), muscular strength, and muscular endurance. Military physical fitness is described in terms of these three areas, for which optimal achievement can only be obtained through regular planned exercise.<sup>8</sup>

An effective physical fitness program must incorporate five basic principles:

1. Regularity: Exercise must be done on a regular basis.
2. Progression: The duration and intensity of the exercise should be gradually increased over time.
3. Overload: The muscles must be given a workload that exceeds normal demands.
4. Balance: There must be a balance in activities to insure both aerobic fitness as well as muscular fitness.
5. Variety: To prevent boredom, an exercise program must be varied.

When these principles are adhered to, physical improvements will be achieved over the long term. In particular these improvements may include:

1. Reduced risk of coronary heart disease.

2. Improved circulation and respiration.
3. Improved body composition.
4. Strengthened muscles, bones, ligaments, tendons.
5. Reduced stress.
6. Reduced susceptibility to injury.<sup>9</sup>

As a means of monitoring and evaluating a unit's physical fitness (physical readiness), Commanders are required to administer on a semi-annual basis, the Army Physical Readiness Test (APRT). The test consists of three timed events: the push-up, the sit-up and the two-mile run. Minimum standards for each event are established with adjustments for both age and sex. The APRT is designed to measure the basic components of physical readiness and to evaluate the soldier's physical readiness to perform assigned tasks. This index of a person's physical fitness is determined by converting raw scores for each test event into point scores.<sup>10</sup> A maximum score totals 300 points (100 possible points in each event) while a minimum passing score totals 180 points (60 points in each event).

AR 350-15 also recognizes that formal PT programs (refer to definition of Formal PT Program at Appendix A) may not be practical in some work environments, such as those with shift work. U.S. Army Hospitals fall into this category. Commanders must decide how much time can be spent on physical readiness training without adversely affecting the overall peacetime mission and operational readiness of the unit. Obviously, there exist major differences in command priorities between field medical

units (i.e., medical battalion), where the primary peacetime mission is readiness training, and fixed medical treatment facilities (i.e., hospital), where the primary mission is the provision of health care. In field medical units (TOE Units) duty time is allocated for physical training, whereas within the typical MEDDAC/MEDCEN setting no such time is provided. Thus, hospital personnel must execute their PT programs outside of their official duty time, as well as personally insure that the principles of an effective fitness program are incorporated. It is in this setting, the dichotomy between the mission priorities of field medical units and fixed medical facilities, and the subsequent structuring of their respective PT programs, that this research intends to focus.

The initial stimulus for the project originated during the Resident's rotation with the Preventive Medicine Activity, Frankfurt Army Regional Medical Center. The Chief, of Preventive Medicine, who is also a member of the HFAT, has a vested interest in the health of the community and realizes the short and long range benefits of Total Fitness, both to the Army and the soldier. He expressed concern over the level of physical fitness attained by those soldiers assigned to activities lacking formal PT programs. He expressed hope that the marketing efforts of the Total Fitness movement have been successful, but questioned the ability of units without formal PT programs to achieve the same level of fitness (physical readiness) as those with formal programs.

In addition, both the Director for the Surgeon General's Task Force on Physical Fitness and the Health Fitness Officer for 7th Medical Command have expressed a desire for research which would add validated data to this area of concern. The Commander of 7th Medical Command has underlined the need for structured physical fitness programs at each MEDDAC/MEDCEN since he believes that a positive correlation exists between formally structured programs and physical fitness, as measured by the APRT.<sup>11</sup>

Research in this area would expand the body of knowledge concerning the ability of AMEDD personnel assigned to fixed medical facilities to maintain Army physical fitness standards as compared to their TOE counterparts. The results of this study may assist those persons tasked with the responsibility of providing direction for the AMEDD's Total Fitness Program.

#### Statement of the Research Question

Are soldiers who are assigned to AMEDD units with formal physical training programs achieving the same level of physical fitness as soldiers assigned to AMEDD units with no formal physical training programs?

#### Statement of Objectives, Criteria, Assumptions, and Limitations

##### Objectives

The specific sequential objectives of this research effort are as follows:

1. Identify those AMEDD units with formal PT programs and

those without formal PT programs within the Federal Republic of Germany.

2. Collect the most recent APRT results from those AMEDD units in the two sample populations: AMEDD units with formal PT programs and AMEDD units without formal PT programs.

3. Identify significant variations in the conduct of the formal PT programs.

4. Analyze APRT results using the appropriate statistical test.

5. Make inferences concerning the influence of a formal PT program on the level of physical fitness within the AMEDD.

#### Criteria

The research hypothesis will be evaluated through a series of hypothesis tests involving the difference between two population means. These population means consist of the mean performance levels of the APRT with age and sex categories. The hypotheses to be tested are: the null hypothesis of no difference between the performance level means and the alternative hypothesis of inequality between the means. The selected level of significance for these tests will be five percent.

The performance levels will be measured by:

1. The number of sit-ups (raw score)
2. The number of push-ups (raw score)
3. The time in the two-mile run (raw score)
4. The total point score (weighted raw score)

### Assumptions

The assumptions for this research project are:

1. The APRT total point score is a valid measure of the level of physical fitness.
2. The conduct of the APRT is uniformly administered with similar rigor, among all units according to, and as required by, those instructions contained in the Physical Readiness Training Field Manual, FM 21-20.
3. Education and professional orientation would not be a significant factor in the level of physical fitness between field medical units and hospitals.
4. A sample of formal PT programs at individual units is representative of the total population of formal PT programs, and a sample of informal PT programs at individual units is representative of the total population of informal PT programs.
5. The test scores, by age and sex, are normally distributed about their respective means.
6. The data constitutes two independent random samples.
7. The population variances are equal.

### Limitations

The total population to be examined (See definition at Appendix A) will be limited to enlisted personnel, not on profile, ages 17-39, and assigned to Army medical units (medical battalions, combat support hospitals, ambulance companies, community hospitals and medical centers) within the Federal Republic of Germany. This limitation will provide a more

homogeneous population base from which to draw the two sample populations, due to the fact that a majority of the personnel have medically related occupations, have similar professional orientations, and have similar educational backgrounds.

#### Statement of Additional Influencing Factors

One additional influencing factor is that although the data to be collected is representative of the total population, the total population is not static and constantly changes through time. Therefore, the collected data will be treated as a sample of the total population, requiring the researcher to follow the principles of inferential statistics, and more specifically, to use the process of estimation throughout the hypothesis testing.

#### Review of the Literature

Physical fitness has received a great deal of attention in the literature in recent years. Numerous cross sectional and prospective studies have been made concerning the role of physical fitness and exercise in the prevention and treatment of coronary artery disease. "Exercise modifies most risk factors of coronary heart disease and may reduce the incidence of myocardial infarction and death from this cause."<sup>12</sup> Kannel's "Framingham Study" found that the more active an individual was, the less the risk of a cardiac event, in contrast to sedentary individuals who were particularly liable to fatal heart attacks.<sup>13</sup> Cooper et al

found an inverse relationship between physical fitness and the following: resting heartrate, body weight, percent of body fat, serum levels of cholesterol and triglycerides, blood glucose, and systolic blood pressure.<sup>14</sup> Other researchers (Leer, 1976; Kastruvala, 1976) have investigated the relationship of physical fitness and mental health. The demonstrated benefits include a decrease in depression, improved feeling of well-being, a sense of mastery over one's body, increased self-confidence and patience, a sense of accomplishment and decreased tension and anxiety.<sup>15</sup>

Physical fitness programs have also become an integral part of many corporate structures. Corporations such as IBM, Xerox, and USAA have committed themselves to fitness programs, predicting that substantive long term savings in corporate health care and health insurance expense will result. At the same time, these progressive corporations are receiving the benefits of short term results in the form of reduced absenteeism, increased productivity and improved employee morale.<sup>16</sup> For example, a study involving a pilot fitness program at Metropolitan Life showed a decrease in absenteeism from 6.3 days/year to 4.9 days/year.<sup>17</sup> Another study involving a Toronto Insurance Company found a 42% decrease in average monthly absenteeism after six months of an aerobic fitness program. The same study also showed a decrease in overall hospital utilization from .27 to .09 hospital days per employee per year, while the control group showed an increase from .13 to .51 hospital days per employee per year.<sup>18</sup>

"Improvements in energy level, attitude toward job and toward



company, overall morale, and work performance are difficult to measure and have been only assessed by self-report. The unanimity of strong positive findings, however, suggest that the changes many individuals report are personally significant."<sup>19</sup> One author's assessment of this improved morale is that either 1) employees who feel better take a bright view of the world in general, or 2) they are pleased to have their companies doing something just for them. Corporations view this improved morale, along with increased production and decreased absenteeism, as the basis for judging a company's fitness program to be cost effective.<sup>20</sup>

The literature also discussed the commitment to fitness on the part of several governments. Canada, Switzerland and Sweden were cited as specific examples of countries who have initiated comprehensive preventive campaigns emphasizing the need for people to alter habitual practices that lead to ill health. The emphasis of these programs is to instill an attitude of maintaining lifelong fitness for the majority of the population.<sup>21</sup>

The literature review did not reveal any related studies concerning the basic research question. This may be due to the fact that the U.S. Army's method of assessing one's level of physical fitness through a standardized Annual Physical Readiness Test is unique to the Armed Forces.

A prior study conducted by this author in December 1983 also compared levels of physical fitness between two AMEDD units; one unit with a formal PT program and one without a formal PT program.

In contrast to this analysis, the prior study (herein after referred to as the December 83 Study) only compared the mean performance levels of the three APRT events. It did not compare the total point scores of the APRT for the two populations. The study indicated the following:

1. That soldiers assigned to the AMEDD unit with a formal program achieved significantly better mean performance levels in the two mile run than soldiers assigned to the AMEDD unit with no formal program.

2. That soldiers assigned to the AMEDD unit with a formal program and soldiers assigned to the AMEDD unit with no formal program achieved the same level of performance in the situp event.

This study, although similar to this research effort, had several limiting factors. These include:

1. The study was limited in scope in that only two AMEDD units were examined.

2. The study did not examine the relative APRT total point scores of the two populations.

3. The sample population size in some of the categories was too small to assume normality.<sup>22</sup>

It is evident from a review of the literature that the Army's emphasis on physical fitness has sound medical, psychological and economic foundations. In addition to the requirements to maintain a physically fit Army for the wartime mission, the Army will probably reap additional benefits in the form of increased morale, increased productivity and decreased costs by maintaining a strong progressive physical fitness program.

### Research Methodology

The research methodology consists of two major components: Data Collection and Data Analysis.

#### Data Collection

The first step to be accomplished in this research effort will be the identification of AMEDD units with formal PT programs and AMEDD units with no formal PT programs in the total population. Plans, Operations and Training Officers at each medical battalion, combat support hospital, ambulance company, station hospital, general hospital and medical center located in Germany will be contacted and queried to ascertain the status (formal or not formal) of their respective PT programs, and to discern the essential elements of each of the formally structured programs. A sample of the questions to be asked is found at Appendix B. The two populations will constitute 100% of those AMEDD units identified as having formal PT programs and 100% of those AMEDD units not having formal PT programs.

The APRT data will then be collected by the researcher. The data will be collected and stratified for enlisted personnel according to sex and age bracket (17-25, 26-30, 31-35, 36-39). The data will consist of the total point score and the raw score in each of the three events for every enlisted person taking the APRT. A data collection form (see Appendix C) will be used to facilitate this effort. The data from units with formal PT programs will constitute one sample population and the data from

units without formal PT programs will constitute the other sample population. Document names for each of the three events and the total point score according to age and sex within each of the sample populations are provided at Appendix D.

#### Data Analysis

The sample mean, variance and standard deviation will be computed for the total point score and for each of the three events by age and sex category. Following this computation, the F Test will be used to test the hypothesis of equality of the two population variances, for each of the 32 categories. The hypothesis for each category will follow the generic format:

$$H_0: \sigma_1^2 = \sigma_2^2$$

$$H_A: \sigma_1^2 \neq \sigma_2^2$$

The test statistic for each category will involve the computation of the Variance Ratio (V.R.)

$$V.R. = \frac{s_1^2}{s_2^2}$$

When the null hypothesis is true, the test statistic is distributed as F with  $n_1 - 1$  and  $n_2 - 1$  degrees of freedom. At the .05 level of significance, the computed V.R. is then compared to the critical value of F using the F Distribution Table. The V.R. must be less than the critical value of F for the Null hypothesis ( $H_0$ ) to be accepted.

Hypothesis testing, as described in the criteria will then be conducted to test the equality of the two sample population means in each of the 32 categories. The hypothesis for each category to be tested will follow the generic format:

$$H_0 : \mu_1 = \mu_2$$

$$H_A : \mu_1 \neq \mu_2$$

The test statistic for each category to be tested will follow the generic formula for samples from normally distributed populations with population variances unknown but assumed equal:

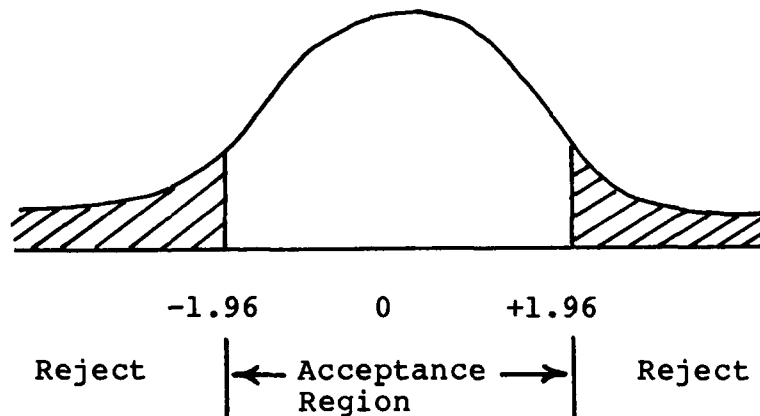
$$Z = \frac{(X_1 - X_2) - 0}{s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

where  $s_p$  = the pooled estimate of the common population variance:

$$s_p = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

If the population variances cannot be assumed to be equal (F Test rejects the  $H_0: \sigma_1^2 = \sigma_2^2$ ) then the variances cannot be pooled.

At the five percent level of significance ( $\alpha=.05$ ) the critical values of  $Z$  are  $\pm 1.96$ . The null hypothesis is rejected unless  $-1.96 < Z_{\text{Computed}} < +1.96$ . Depicted graphically, the acceptance and rejection regions are:



The results of the hypothesis test involving the Total Point Score will indicate whether a statistical difference exists in the level of physical fitness between two sample populations, according to age and sex. The hypothesis tests involving the three APRT events will assist the researcher in analyzing the overall physical fitness results as measured by the total weighted APRT results according to age and sex.

Additional questions to be answered are:

1. Does the formal training program produce a different level of physical fitness in any age or sex group?
2. Can a different level of overall physical fitness in an age or sex group be attributed to an improved level of performance in a particular event?
3. Is there an impact on the overall physical fitness across age and sex groups by a formal training program?
4. Can inferences be drawn from the hypothesis tests regarding the issue of having or not having formal PT programs in fixed medical treatment facilities?

## II. DISCUSSION

The initial step in the research involved the identification of those AMEDD units with formal PT programs, and those AMEDD units with no formal PT programs. The APRT Questionnaire (see Appendix B) was used to ascertain which units met the criteria of having formal PT programs. That criteria consists of: organized calisthenics and distance running on a regular basis (at least three times per week) with maximum unit participation (at least 75%).

The results of the questionnaire are found in Table 1 and reflect that all (100%) of the field medical units have formal PT programs, and that none (0%) of the MEDDACs or MEDCENS have formal PT programs. One unit, Augsburg MEDDAC, did not respond to the questionnaire, and is therefore not included as part of this research.

The data (total point score, number of pushups and situps, and two mile run time) was collected from each of the identified AMEDD units via the data collection forms (Appendix C). The sample population mean, variance and standard deviation for each of the 32 categories in the two populations were computed. The data and computed results are found at Appendix E (Formal Program) and Appendix F (No Formal Program).



TABLE 1

## APRT QUESTIONNAIRE

AMEDD UNIT	FORMAL PROGRAM	DAYS/WEEK	% OF UNIT PARTICIPATION	CALISTHENTICS TYPE/FREQUENCY	RUN DIST/FREQ	SUPPLEMENTAL SPORTS
3rd Med Bn	Yes	5	95-100%	Cond. Drills per FM 21-20 4x/wk	2-4 Miles 4 days per wk	Seasonal Every Wed.
8th Med Bn	Yes	3	90-95%	Cond. Drills per FM 21-20 3x/wk	2-4 Miles 3 days per wk	None Regularly
45th Med Bn	Yes	3	90-95%	Cond. Drills per FM 21-20 3x/wk	2-3 Miles 3 days per wk	None Regularly
47th Med Bn	Yes	4	90%	Cond. Drills Plus Pushup/Situp 3x/wk	2-3 Miles 3 days per wk	Seasonal Every Thurs.
31st CSH	Yes	3	95%	Cond. Drills Plus Pushup/Situp 5x/wk	2 Miles 3 days per wk	Voll'ball/Bask'ball 1 day per wk
128th CSH	Yes	3	85%	Cond. Drills 3x/wk	2 Miles 3 days per wk	None
42nd Med Co	Yes	3	95%-100%	Cond. Drills Aerobics 1x/wk	3-4 Miles 3 days per wk	Bask'ball/Voll'ball 2 days per wk
651st Med Co	Yes	3	95-100%	Cond. Drills per FM 21-20 3x/wk	3 Miles 3 days per wk	Seasonal 1 day per wk
7th CSH	Yes	3	100%	Cond. Drills per FM 21-20 3x/wk	2-3 Miles 3 days per wk	Seasonal 2 days per wk
32nd CSH	Yes	4	90%	Cond. Drills Plus Aerobics-Daily	2 Miles 4 days per wk	Seasonal 1 day per wk
557th Med Co	Yes	4	95-100%	Cond. Drills 3x/wk	2 Miles 3 days per wk	Seasonal 1 day per wk
583rd Med Co	Yes	4	95%	Cond. Drills 2x/wk	2 Miles 2 days per wk	Seasonal
Augsburg				NO RESPONSE		
Bad Cannstatt	No	NA	NA	NA	NA	NA
Bremerhaven	No	NA	NA	NA	NA	NA
Heidelberg	No	NA	NA	NA	NA	NA
Nuernburg	No	NA	NA	NA	NA	NA
Wurzberg	No	NA	NA	NA	NA	NA
Frankfurt	No	NA	NA	NA	NA	NA
Landstuhl	No	NA	NA	NA	NA	NA

Hypothesis testing involving the difference between two population variances and hypothesis testing involving the differences between two population means at a .05 level of significance were conducted for each of the 32 categories. The computed test statistics are listed by age category in tables Tables 2 through 5.

To assist in the data analysis, Table 6 displays the 32 categories; lists the higher performance level mean according to population; and indicates those results which are statistically significant. As alluded to earlier, all table references to the thirty-two separate age and sex categories for the three APRT events and the total point score are in the form of document names, as provided in Appendix D.

The computed results as shown in Table 6 reveal that without regard to statistical significance, AMEDD units with formal PT programs obtained higher mean Total Point Scores in each of the eight age and sex categories (100%). However, the test statistics indicate that three of these higher means were not statistically significant. These three categories, as indicated in Table 6, include: Age 17-25/Male (AMTP) and Age 31-35/Female (DFTP). Thus, five of the eight age and sex categories (62.5%) had significantly higher Total Point Scores for AMEDD units with formal PT programs.

An analysis of the three APRT events (see Table 7) indicates the following:

Two Mile Run. Across all age and sex categories, personnel

TABLE 2

## COMPUTED RESULTS AGE 17-25

AGE 17-25	CATEGORY	AMTPY		AMTPN		AMPUY		AMPUN		AMSUY		AMSUN		AMRUY		AMRUN	
		774	454	774	454	774	454	774	454	774	454	774	454	774	454	774	454
MALE	n	234.07	230.68	50.64	53.37	50.64	53.37	50.64	53.37	54.62	55.10	54.62	55.10	14.84	15.75	14.84	15.75
	x <sup>2</sup>	913.60	1123.18	120.42	129.96	120.42	129.96	120.42	129.96	114.27	134.03	114.27	134.03	3.27	3.39	3.27	3.39
	V.R.	1.23		1.08		1.08		1.08		1.17		1.17		1.04		1.04	
	Z	-1.82		2.60		2.60		2.60		.73		.73		2.45		2.45	
FEMALE	DECISION	Accept H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>	
	n	292	331	292	331	292	331	292	331	292	331	292	331	292	331	292	331
	x <sup>2</sup>	274	236.95	28.83	29.07	28.83	29.07	28.83	29.07	50.76	48.21	50.76	48.21	17.86	19.37	17.86	19.37
	V.R.	1139.95	1128.54	116.41	91.15	116.41	91.15	116.41	91.15	168.34	164.53	168.34	164.53	5.54	6.29	5.54	6.29
AGE 17-25	Z	1.01		1.28		1.28		1.28		1.02		1.02		1.13		1.13	
	DECISION	Reject H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>	
		-3.79		.29		.29		.29		-2.47		-2.47		7.75		7.75	
		Reject H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>	

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TABLE 3

## COMPUTED RESULTS AGE 26-30

AGE 26-30	CATEGORY	BMTPY		BMTPN		BMPUY		BMPUN		BMSUY		BMSUN		BMRUY		BMRUN	
		302	349	302	349	302	349	302	349	302	349	302	349	302	349	302	349
MALE	n	323.25	221.91	47.93	46.83	47.93	46.83	47.93	46.83	51.93	50.25	51.93	50.25	15.38	16.36	15.38	16.36
	x <sup>2</sup>	1013.60	1027.37	114.28	168.40	114.28	168.40	114.28	168.40	120.92	124.11	120.92	124.11	3.53	3.83	3.53	3.83
	V.R.	1.01		1.47*		1.47*		1.47*		1.03		1.03		1.08		1.08	
	Z	-4.11		-1.19		-1.19		-1.19		-1.93		-1.93		6.44		6.44	
FEMALE	DECISION	Reject H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>	
	n	88	168	88	168	88	168	88	168	88	168	88	168	88	168	88	168
	x <sup>2</sup>	248.55	233.46	27.52	26.48	27.52	26.48	27.52	26.48	46.40	41.93	46.40	41.93	18.15	19.98	18.15	19.98
	V.R.	1336.09	1237.96	100.23	88.93	100.23	88.93	100.23	88.93	142.36	137.33	142.36	137.33	5.76	6.27	5.76	6.27
AGE 26-30	Z	1.08		1.13		1.13		1.13		1.04		1.04		1.09		1.09	
	DECISION	Reject H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>	
		-3.21		-.83		-.83		-.83		-2.87		-2.87		5.64		5.64	
		Reject H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Accept H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>		Reject H <sub>0</sub>	

\* Cannot assume the variances are equal and therefore cannot "pool" the variances in computing Z.

TABLE 4

## COMPUTED RESULTS AGE 31-35

AGE	CATEGORY	CMTPY		CMTPN		CMPUY		CMPUN		CMSUY		CMSUN		CMRUY		CMRUN	
		n	x	s <sup>2</sup>	V.R.	z	DECISION	n	x	s <sup>2</sup>	V.R.	z	DECISION	n	x	s <sup>2</sup>	V.R.
31-35	MALE	161	235.17	1270.05	1.02	-3.89	Reject H <sub>0</sub>	221	46.71	133.71	1.02	-2.34	Reject H <sub>0</sub>	161	50.42	130.70	1.05
	DECISION																Reject H <sub>0</sub>
31-35	FEMALE	41	254.24	794.59	1.40	-0.95	Accept H <sub>0</sub>	84	22.61	66.94	1.60	1.98	Reject H <sub>0</sub>	41	41.07	114.17	1.09
	DECISION																Reject H <sub>0</sub>
31-35	MALE	161	235.17	1270.05	1.02	-3.89	Reject H <sub>0</sub>	221	46.71	133.71	1.02	-2.34	Reject H <sub>0</sub>	161	50.42	130.70	1.05
	DECISION																Reject H <sub>0</sub>
31-35	FEMALE	41	254.24	794.59	1.40	-0.95	Accept H <sub>0</sub>	84	22.61	66.94	1.60	1.98	Reject H <sub>0</sub>	41	41.07	114.17	1.09
	DECISION																Reject H <sub>0</sub>

TABLE 5

## COMPUTED RESULTS AGE 36-39

AGE	CATEGORY	DMTPY		DMTPN		DMPUY		DMPUN		DMSUY		DMSUN		DMRUY		DMRUN	
		n	x	s <sup>2</sup>	V.R.	z	DECISION	n	x	s <sup>2</sup>	V.R.	z	DECISION	n	x	s <sup>2</sup>	V.R.
36-39	MALE	66	237.59	1261.05	1.09	-2.98	Reject H <sub>0</sub>	119	44.36	143.22	1.27	-0.65	Accept H <sub>0</sub>	66	47.92	148.07	1.26
	DECISION																Accept H <sub>0</sub>
36-39	FEMALE	10	267.60	645.16	1.02	-0.40	Accept H <sub>0</sub>	28	22.30	50.46	1.26	-0.09	Accept H <sub>0</sub>	10	31.00	11.33	4.75*
	DECISION																Accept H <sub>0</sub>
36-39	MALE	66	237.59	1261.05	1.09	-2.98	Reject H <sub>0</sub>	119	44.36	143.22	1.27	-0.65	Accept H <sub>0</sub>	66	47.92	148.07	1.26
	DECISION																Accept H <sub>0</sub>
36-39	FEMALE	10	267.60	645.16	1.02	-0.40	Accept H <sub>0</sub>	28	22.30	50.46	1.26	-0.09	Accept H <sub>0</sub>	10	31.00	11.33	4.75*
	DECISION																Accept H <sub>0</sub>

\* Cannot assume the variances are equal and therefore cannot "pool" the variances in computing z.

TABLE 6  
ANALYSIS OF RESULTS

*CATEGORY	HIGHER MEAN - FORMAL PROGRAM	HIGHER MEAN - NO FORMAL PROGRAM	*STATISTICALLY SIGNIFICANT DIFFERENCE = .05
AMTP	X		No
AMPU		X	Yes
AMSU		X	No
AMRU	X		Yes
AFTP	X		Yes
AFPU		X	No
AFSU	X		Yes
AFRU	X		Yes
BMTP	X		Yes
BMPU	X		No
BMSU	X		No
BMRU	X		Yes
BFTP	X		Yes
BFPU	X		No
BFSU	X		Yes
BFRU	X		Yes
CMTP	X		Yes
CMPU	X		Yes
CMSU	X		Yes
CMRU	X		Yes
CFTP	X		No
CFPU		X	Yes
CFSU	X		Yes
CFRU	X		Yes
DMTP	X		Yes
DMPU	X		No
DMSU	X		No
DMRU	X		Yes
DFTP	X		No
DFPU	X		No
DFSU		X	No
DFRU	X		Yes

\* Note: Total point score entries are offset

assigned to AMEDD units with formal PT programs achieved significantly better times in the two mile run than their counterparts assigned to AMEDD units with no formal PT program.

Push-Up. The results in the push-up are not as conclusive as the two mile run. In the push-up event, higher mean performance levels were achieved by AMEDD units with formal PT programs in five of the eight age and sex categories, of which only one (Age 17-25/Female) was significantly higher (12.5%). AMEDD units with no formal PT programs experienced higher mean performance levels in three of the eight categories, of which two (Age 17-25/Male and Age 31-35/Female) were significantly higher (25%). This fact is of particular importance since in both instances the total point scores of the formal programs were not significantly higher than the total point scores of those units without formal programs. It is evident that the higher performance level of the push-up contributed significantly to the outcome of "no significant difference between the total point scores."

Sit-Up. In the situp event, higher mean performance levels were achieved by AMEDD units with formal PT programs in six of the eight age and sex categories of which four (Age 17-25/Female, Age 26-30/Female, Age 31-35/Male and Age 31-35/Female) were significantly higher. Of the two categories in which higher mean performance levels were achieved by AMEDD units with no formal PT programs, neither of the two were significantly higher.

The lack of consistency in the push-up and sit-up results may be a matter of much discussion. Two possible explanations are:

That the standard of conduct of the APRT in these two events are not consistent from unit to unit; and secondly, that the type, quantity or frequency of conditioning drills designed to enhance one's muscular strength and endurance are insufficient to effect a significant difference in the APRT.

TABLE 7  
ANALYSIS OF APRT EVENTS  
(With Reference to Higher Mean Performance Level)

STATISTICAL DECISION	PUSHUPS		SITUPS		2 MILE RUN	
	FORMAL PROGRAM	NO FORMAL PROGRAM	FORMAL PROGRAM	NO FORMAL PROGRAM	FORMAL PROGRAM	NO FORMAL PROGRAM
ACCEPT $H_0$	4	1	2	2	0	0
REJECT $H_0$	1	2	4	0	8	0
% With a Statistical Difference	12.5%	25%	50%	0%	100%	0%

Note: The results are compiled according to the population with the higher mean performance level.

An analysis of the APRT events by age and sex (see Table 8) revealed that;

1. Only two events had significantly higher results in AMEDD units with no formal PT program as compared to thirteen events in AMEDD units with a formal PT program.

2. The incidence of events with statistically significant differences across the age and sex categories was fairly consistent, with one exception. In the Age 31-35/Male category,

AMEDD units with formal PT programs achieved significantly higher mean performance levels in each of the three events (100%).

TABLE 8  
Analysis of APRT Events By Age and Sex  
(with reference to higher mean performance level)

Statistical Decision	AGE 17-25				AGE 26-30				AGE 31-35				AGE 36-39			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Accept $H_0$		1		1	2		1						2		1	1
Reject $H_0$	1	1	2		1		2		3		2	1	1		1	
% With A Significant Difference	33	33	66	0	33	0	66	0	100	0	66	33	33	0	33	0

Note: The results are compiled according to the population with the higher mean performance level. (Y = Formal Program, N = No Formal Program)

Since the APRT is a measurement of the level of physical fitness for individual soldiers, a further indicator of relative levels of physical fitness is the incidence of soldiers failing and the incidence of soldiers obtaining maximum scores. As shown in Table 9, the percentage of soldiers achieving maximum scores is approximately the same in the two populations - 4.2% vs 4.4%. However, the percentage of soldiers failing the APRT in units with no formal PT program is twice as high as that in units with a formal PT program - 1.8% vs 3.6%.



TABLE 9  
A Comparison of APRT Scores - Failure and Maximum

Category	Formal Program			No Formal Program		
	Number of Participants	Number of Failures	Number of Maximums	Number of Participants	Number of Failures	Number of Maximums
Age 17-25/Male	774	14	16	454	14	12
Age 17-25/Female	292	8	21	331	1	14
Age 26-30/Male	302	2	11	349	21	8
Age 26-30/Female	88	3	9	168	4	9
Age 31-35/Male	161	4	11	221	13	12
Age 31-35/Female	41	1	2	84	3	6
Age 36-39/Male	66	0	5	119	7	10
Age 36-39/Female	10	0	2	28	0	2
Totals	1734	32	77	1754	63	73
Percentage of Total	----	1.8%	4.4%	----	3.6%	4.2%

These outcomes indicate that the significant differences in physical fitness levels between the two populations is primarily a result of improved cardiovascular conditioning of the population which participates in a 2-4 mile run, 3-5 times per week. Without the significantly better mean performance levels in the 2 mile run across all age and sex categories (among AMEDD units with formal programs), the analysis would not have been as conclusive in answering the research question.

### III. CONCLUSIONS

This analysis has shown that in five of the eight age and sex categories examined and at a five percent level of significance, soldiers assigned to AMEDD units with formal physical training programs achieved a statistically significant higher level of physical fitness than soldiers assigned to AMEDD units without formal physical training programs. Secondly, the analysis has shown that in two of the three age and sex categories in which differences in physical fitness levels were not significant, the push-up event was the single most contributing factor to this phenomenon. Third, the analysis has shown that across all age and sex categories, soldiers assigned to AMEDD units with formal training programs achieved significantly better times in the two mile run than their counterparts with no formal programs. Fourth, the analysis has shown that in the sit-up and push-up events, a formal PT program does not produce consistent, significantly higher results in the mean performance levels of those age and sex categories examined. Fifth, the analysis has shown that a formal PT program has a significantly greater impact on the mean performance levels of the 31-35 age category when compared to other age categories. And sixth, the analysis has shown that the incidence of soldiers obtaining maximum scores in the APRT is approximately the same for both populations; but that the failure

rate for units with formal programs is about one-half that of units without a formal program.

These results, as summarized here and detailed in the Discussion, clearly answer the basic research question. Soldiers assigned to AMEDD units with formal physical training programs are achieving a higher level of physical fitness than soldiers assigned to AMEDD units without a formal physical training program.

## EPILOGUE

During the course of this research effort various issues were surfaced. Their relevance to the topic of physical fitness is unequivocal, yet their resolution is beyond the scope of this project. This researcher considered the acknowledgement of these issues to be germane to the greater issue of physical fitness in the AMEDD. They include:

1. Is the Army Physical Readiness Test a valid measurement of physical fitness? Although this was a basic assumption, the question was repeatedly raised during the research project.

2. To what extent does "motivation" on the part of individual participants influence the outcome of the APRT? The essence of concern is whether the "esprit de corps" of certain small and often cohesive field medical units results in a heightened level of motivation to perform well as compared to fixed medical treatment facilities.

3. Should formally structured PT programs be implemented in MEDDACs and MEDCENS? In this issue, concerns of mission priorities are self evident, and the potential benefits of increased physical fitness levels through formal PT programs must be carefully weighed against all potential disadvantages of such an action.

Research in these and other areas of concern would contribute to the total assessment of physical fitness in the AMEDD and would complement the research conducted for this study. It is hoped that the data collected and the analyses performed in this research effort will assist those persons charged with the responsibility of formulating and directing the AMEDD's physical fitness program.

## FOOTNOTES

<sup>1</sup>U.S., Department of the Army, The Commander's Handbook on Physical Fitness, DA Pamphlet 350-15, (Washington, D.C.: Government Printing Office, 15 October 1982), p. i.

<sup>2</sup>U.S., Department of the Army, Physical Readiness Training, Field Manual No. 21-20, (Washington, D.C.: Government Printing Office, 31 October 1980), p. 1-2.

<sup>3</sup>U.S., Department of the Army, DA Pamphlet 350-15, p. 1.

<sup>4</sup>U.S., Department of the Army, Physical Fitness Training - Total Fitness, Training Support Package (Ft Benjamin Harrison, IN.: Government Printing Office, 1982), p. 13-19.

<sup>5</sup>Letter, Office of the Surgeon General (DASG-PSF) to Commander, FARMC, Subject: Physical Fitness, October 1983.

<sup>6</sup>U.S., Department of the Army, DA Pamphlet 350-15, p. 2.3.

<sup>7</sup>U.S., Department of the Army, The Army Physical Fitness Program, Army Regulation 350-15, with Change 1 (Washington, D.C.: 15 July 1982), p. 3-4.

<sup>8</sup>U.S., Department of the Army, DA Pamphlet 350-15, p. 4-9.

<sup>9</sup>Ibid, p.4.

<sup>10</sup>U.S., Department of the Army, Field Manual No. 21-20, p. E8.

<sup>11</sup>Interview with Colonel G.D. Plunkett, MC, Consultant to the Chief Surgeon, USAREUR, 7th Medical Command, APO New York 09102.

<sup>12</sup>William F. Mead, M.D., and Rick Hartwick, MS, "Fitness Evaluation and Exercise Prescription," The Journal of Family Practice, 13(July 1981): 1039.

<sup>13</sup>Ibid.

<sup>14</sup>Ibid.

<sup>15</sup>Judith W. Tulloch and Christine C. Healy, "Changing Lifestyles: A Wellness Approach," Occupational Health Nursing 30(June 1982): 17.

<sup>16</sup>Robert M. Cunningham, "Wellness at Work: Not Just a Passing Fancy," Hospitals 56(June 1982): 82-83.

<sup>17</sup>Johnathan E. Fielding, M.D., "Effectiveness of Employee Health Improvement Programs," Journal of Occupational Medicine 24(November 1982): 911.

<sup>18</sup>Ibid.

<sup>19</sup>Ibid.

<sup>20</sup>Cunningham, p. 83.

<sup>21</sup>Robert Buxbaum and Ronald O'Conner, "Fitness Trails," The New England Journal of Medicine 296(March 1977): 690.

<sup>22</sup>E.P. Phillips Jr., "A Comparative Analysis of the Level of Physical Fitness Between the 97th General Hospital and the 45th Medical Battalion," Baylor University, 1983.



APPENDIX A  
DEFINITIONS

## DEFINITIONS

Total Fitness. Total Fitness is a concept envisioned to include not only physical fitness (exercise) but also weight control, proper nutrition, stress reduction, smoking cessation and substance abuse control. It is the maintenance of a lifestyle which reduces risks of coronary heart disease and increases a person's level of maintenance and productivity.<sup>1</sup>

Physical Fitness. Physical Fitness is the ability to perform physically demanding activities for an extended period of time and is achieved through proper exercise and physical conditioning. Physical fitness consists of: Cardiorespiratory fitness, muscular fitness, flexibility, and body composition.<sup>2</sup>

Physical Readiness. Physical Readiness is the ability to perform heavy, physical work and maintain good health and appearance. Physical Readiness consists of: muscular strength, muscular endurance, and cardiorespiratory endurance.<sup>3</sup>

\*NOTE: For the purpose of this paper, and based on the stated definitions, physical fitness and physical readiness have the same meaning.

Formal Physical Training Program. Formal Physical Training denotes a program which is organized by the unit commander and requires maximum collective participation of all assigned personnel in a structured physical/readiness program. Such programs shall consist of calisthenics and distance running at

least three days per week and may be supplemented by sports activities.

Army Physical Readiness Test (APRT). The APRT is an individual test designed to measure the level of fitness in the soldier. Testing consists of three events: number of push-ups in two minutes, number of sit-ups in two minutes, and a timed two-mile run. Raw score data for each of the three events is converted to a point score, which when totaled together provides an index of the individuals's level of physical fitness.<sup>4</sup>

Total Point Score. The Total Point Score is the sum of the converted raw scores for the three events of the APRT. It is an index of an individual's level of physical fitness.

AMEDD Unit. For the purpose of this research paper, AMEDD Units are those medical battalions, combat support hospitals, ambulance companies, hospitals/MEDDACs and medical centers located in the Federal Republic of Germany.

Total Population. For the purpose of this research paper, the total population consists of those AMEDD units located in the Federal Republic of Germany. Specifically, the population includes the following units:

Divisional Medical Battalions

3rd Medical Battalion

8th Medical Battalion

45th Medical Battalion

47th Medical Battalion

30th Medical Group

31st Combat Support Hospital

128th Combat Support Hospital

42nd Medical Company (Ambulance)

651st Medical Company (Ambulance)

68th Medical Group:

7th Combat Support Hospital

32nd Combat Support Hospital

557th Medical Company (Ambulance)

583rd Medical Company (Ambulance)

Hospitals:

Augsburg MEDDAC

Bad Cannstatt MEDDAC

Bremerhaven MEDDAC

Heidelberg MEDDAC

Nuernburg MEDDAC

Wurzburg MEDDAC

Medical Centers

Frankfurt Army Regional Medical Center

Landstuhl Army Regional Medical Center

## FOOTNOTES

<sup>1</sup>U.S. Department of the Army, Physical Fitness Training - Total Fitness, Training Support Package (Ft Benjamin Harrison, IN.: Government Printing Office, 1982), p. 13-19.

<sup>2</sup>U.S., Department of the Army, The Individual's Handbook on Physical Fitness, DA Pamphlet 350-18, (Washington, D.C.: Government Printing Office, 1 May 1983), p.6.

<sup>3</sup>U.S., Department of the Army, Physical Readiness Training, Field Manual No. 21-20, (Washington, D.C.: Government Printing Office, 31 October 1980), p. 1-2.

<sup>4</sup>Ibid., p. E-1 - E-8.

APPENDIX B  
APRT QUESTIONNAIRE

## APRT QUESTIONNAIRE

DATE: \_\_\_\_\_

UNIT: \_\_\_\_\_

UNIT SPOKESPERSON: \_\_\_\_\_  
NAME POSITION

1. Does your unit conduct a formally structured Physical Training Program? Yes/No

2. If yes, how many days per week is it conducted?

3. Approximately what percent of the unit participates in the PT program?

4. How is the PT program structured?

Calisthenics - What type and how often?

Run - How far and how often?

Sports Activities - What type and how often?

Other

5. Additional Comments:

APPENDIX C  
DATA COLLECTION FORM



UNIT \_\_\_\_\_

AGE (Data collected by age bracket)

**MALE**

FEMALE

**GRADE**

## PUSH-UP

**SIT-UP**

## 2 MILE RUN

GRADE

## PUSH-UP

SIT-UP

2 MILE RUN

APPENDIX D

DOCUMENT NAMES

(Data Category Designator)

## DOCUMENT NAMES

FORMAL PROGRAM

AMTPY  
 AMPUY  
 AMSUY  
 AMRUY  
 AFTPY  
 AFPUY  
 AFSUY  
 AFRUY  
 BMTPY  
 BMPUY  
 BMSUY  
 BMRUY  
 BFTPY  
 BFPUY  
 BFSUY  
 BFRUY  
 CMTPY  
 CMPUY  
 CMSUY  
 CMRUY  
 CFTPY  
 CFPUY  
 CFSUY  
 CFRUY  
 DMTPY  
 DMPUY  
 DMSUY  
 DMRUY  
 DFTPY  
 DFPUY  
 DFSUY  
 DFRUY

NO FORMAL PROGRAM

AMTPN  
 AMPUN  
 AMSUN  
 AMRUN  
 AFTPN  
 AFPUN  
 AFSUN  
 AFRUN  
 BMTPN  
 BMPUN  
 BMSUN  
 BMRUN  
 BFTPN  
 BFPUN  
 BFSUN  
 BFRUN  
 CMTPN  
 CMPUN  
 CMSUN  
 CMRUN  
 CFTPN  
 CFPUN  
 CFSUN  
 CFRUN  
 DMTPN  
 DMPUN  
 DMSUN  
 DMRUN  
 DFTPN  
 DFPUN  
 DFSUN  
 DFRUN

KEY

A = Age 17-25  
 B = Age 26-29  
 C = Age 30-35  
 D = Age 36-39

M = Male  
 F = Female

TP = Total Point Score  
 PU = Push-Up  
 SU = Sit-Up  
 RU = 2 Mile Run

Y = Formal Program  
 N = No Formal Program

APPENDIX E

Computed Results - Formal Program

## AMTPY (AGE 17-25/MALE/TOTAL POINT SCORE/FORMAL PROGRAM)

774

272	248	258	277	249	236	270	292
220	227	239	223	226	226	239	243
275	252	250	271	250	245	248	231
260	240	232	276	237	240	230	187
241	229	250	229	259	235	300	227
284	274	217	257	288	249	235	199
213	222	247	247	186	214	219	280
234	203	280	258	209	248	252	225
233	258	258	212	262	171	214	198
252	249	153	215	261	220	187	245
231	239	227	204	247	300	266	209
300	270	288	255	282	229	286	230
211	229	223	274	219	230	233	292
275	229	211	240	268	255	252	254
256	215	233	243	223	220	228	300
221	227	220	265	262	254	272	241
224	239	206	231	216	199	244	278
227	246	207	201	220	236	245	229
291	208	300	205	238	202	294	186
196	286	202	264	198	228	198	261
212	219	204	271	221	221	279	297
209	222	199	256	268	203	188	194
225	218	254	289	208	252	231	256
238	214	249	247	210	200	226	237
252	236	221	201	238	223	182	218
232	209	223	242	235	232	207	223
221	247	289	218	295	242	224	218
258	206	234	186	257	280	236	215
199	228	254	186	252	229	220	194
207	204	223	257	246	205	231	234
277	274	278	271	204	231	231	253
227	213	198	251	173	203	195	187
191	253	244	192	205	239	187	174
181	180	212	300	242	186	256	189
223	204	220	213	231	257	263	263
252	196	257	213	232	269	201	247
242	226	244	300	228	230	241	199
216	240	243	257	232	238	251	270
264	251	236	212	206	261	214	239
244	300	272	271	206	233	179	228
232	221	300	227	270	227	275	292
208	282	198	226	217	292	187	278
216	244	294	300	236	251	222	274
209	227	264	266	227	221	136	231
238	285	258	288	207	202	264	239
225	229	210	294	206	233	220	254
245	213	218	264	291	211	269	260
236	225	217	300	232	256	264	234
300	300	237	251	288	255	227	300
224	204	233	212	221	200	259	216
260	204	261	283	283	295	293	153

232	254	164	240	230	224	225	223
235	253	218	234	202	189	258	192
217	243	279	271	278	202	267	220
253	233	296	204	219	226	298	218
208	195	191	226	210	223	222	237
220	186	244	226	193	247	233	228
235	248	223	235	199	191	220	243
222	217	197	207	179	224	245	254
272	238	238	288	228	204	250	202
227	233	260	245	211	256	270	246
212	300	231	239	237	243	218	268
194	272	202	279	226	208	246	283
198	226	242	216	264	300	246	289
261	228	243	198	211	297	223	300
253	235	260	202	270	242	206	236
272	263	242	244	240	234	238	208
258	212	220	231	278	199	268	208
210	246	192	253	252	247	259	268
231	263	269	244	182	177	274	256
205	217	246	257	211	241	300	217
236	250	243	260	219	221	198	197
207	247	180	213	269	282	236	216
227	211	218	204	249	277	260	208
264	254	235	203	274	244	245	218
263	259	261	237	269	220	230	300
246	212	202	240	212	212	187	189
256	201	249	195	208	195	210	227
208	265	209	257	185	226	243	241
264	180	229	218	271	197	211	230
239	180	228	235	208	230	194	192
191	211	188	242	205	274	210	271
233	247	237	229	221	198	231	286
194	244	191	214	242	209	198	206
226	205	168	177	214	201	225	199
207	285	220	228	257	210	207	238
214	218	252	300	219	171	216	218
199	219	230	267	203	197	204	203
178	199	199	223	209	189	243	286
221	158	283	227	244	184	274	251
250	270	235	227	250	264	191	205
236	217	298	205	263	274	275	236
221	267	241	289	238	240	225	223
271	204	229	192	195	215	293	203
202	220	205	223	211	235	229	195
232	246	197	238	275	200	223	178
179	241	219	257	280	188		

MEAN

VARIANCE

STANDARD  
DEVIATION

234.068

913.600

30.226

## AMPUY (AGE 17-25/MALE/PUSHUP/FORMAL PROGRAM)

774

78	60	50	69	43	42	63	61
40	44	47	59	45	44	20	41
55	42	56	51	52	50	56	42
40	46	46	63	52	50	41	40
57	52	43	44	60	47	70	40
60	68	43	60	70	34	54	42
40	50	62	45	61	65	76	64
40	43	72	40	41	42	66	45
45	68	66	45	62	40	34	47
46	57	30	41	60	47	31	61
40	60	36	51	60	70	57	43
68	50	60	60	63	48	65	56
40	43	55	60	44	48	50	69
60	55	65	65	43	50	64	52
49	45	50	47	52	40	45	70
41	55	40	70	42	52	52	41
43	44	40	50	42	41	55	57
57	60	48	45	40	37	35	46
72	41	75	41	56	45	83	45
44	68	40	70	42	45	40	52
43	49	40	68	60	45	62	70
45	50	47	70	65	42	40	40
45	47	46	69	43	55	48	50
52	60	68	67	41	50	50	56
75	40	42	40	60	52	42	58
45	50	40	62	51	53	44	42
44	41	39	44	70	51	36	53
52	42	44	40	64	68	55	40
40	53	70	42	63	46	40	40
45	40	45	53	66	45	53	45
60	56	70	53	45	66	65	54
51	40	42	70	40	43	41	40
45	63	61	40	41	46	42	41
40	36	59	75	51	41	50	40
41	40	42	41	49	47	68	45
46	50	55	30	30	56	46	60
50	46	52	75	43	50	51	44
40	55	50	49	50	55	55	53
50	55	63	50	42	68	53	45
63	90	69	65	45	50	34	46
51	50	69	60	60	45	55	64
43	68	45	53	45	66	40	59
40	40	65	70	51	54	43	54
43	50	44	50	45	38	40	56
45	61	50	68	41	45	44	55
45	46	40	65	42	55	44	60
68	40	40	54	45	46	60	67
47	47	65	68	42	56	55	39
70	75	50	47	71	57	46	71
42	40	41	44	46	43	60	50
60	40	55	80	69	70	70	19

61	52	28	59	55	41	55	46
45	57	45	50	40	40	66	41
45	50	64	65	57	40	70	47
48	40	70	38	50	43	85	62
45	40	40	51	50	40	55	48
40	40	31	50	48	47	42	52
50	66	46	58	42	41	54	51
42	40	40	46	40	45	50	65
50	46	50	66	50	49	48	40
46	48	60	54	51	53	51	55
34	70	55	50	50	60	35	69
50	70	40	69	55	40	50	79
37	56	58	46	52	67	54	70
59	48	53	40	41	68	50	80
50	41	53	34	70	51	42	43
69	57	58	57	60	51	50	40
70	41	39	52	60	30	68	42
41	60	43	60	59	62	55	49
44	62	72	62	42	35	55	60
50	55	55	68	58	50	70	41
45	65	56	55	49	40	42	53
47	64	40	60	60	66	56	50
41	37	44	47	52	61	53	41
56	40	60	41	56	57	58	50
60	75	69	50	66	54	49	69
51	50	40	40	43	40	40	10
50	40	42	42	46	40	40	40
41	69	41	55	47	42	55	50
61	40	48	40	68	30	55	40
60	34	59	50	38	44	40	40
43	40	42	59	40	70	41	70
33	50	44	50	36	40	46	62
41	47	40	40	40	49	40	49
40	40	36	40	42	40	46	45
42	63	41	41	50	40	40	52
39	42	64	69	40	32	47	40
40	40	40	47	52	40	40	41
43	40	40	52	32	40	45	89
52	22	70	47	67	40	70	62
63	64	33	59	56	50	40	54
45	40	75	48	75	62	43	62
50	69	46	70	47	54	45	68
70	40	47	40	44	48	69	43
40	52	49	51	50	55	40	43
42	42	41	57	60	40	50	41
41	40	41	47	58	40		

MEAN

50.638

VARIANCE

120.420

STANDARD  
DEVIATION  
10.973



AMSUY (AGE 17-25/MALE/SITUP/FORMAL PROGRAM)  
774

58	44	63	57	69	54	59	61
40	47	67	43	41	55	46	60
69	64	54	69	58	62	52	52
61	54	46	62	45	50	49	45
43	61	74	45	55	53	78	74
77	54	37	53	62	67	57	44
52	50	56	65	61	82	80	63
60	45	69	68	42	62	40	41
53	47	42	54	54	25	48	34
64	51	34	55	57	41	44	52
51	51	56	73	65	70	63	51
69	75	55	51	65	45	65	44
40	50	48	72	43	60	55	65
69	57	60	49	55	69	69	60
76	54	49	61	45	40	57	69
42	44	40	50	70	66	70	59
51	58	60	60	42	41	60	70
40	68	41	40	40	62	69	53
68	60	69	44	56	47	68	41
40	69	40	50	44	65	42	76
50	57	53	68	51	40	70	68
40	57	50	60	67	40	40	50
50	43	63	66	45	57	44	67
62	50	50	51	51	45	55	47
52	46	40	46	42	56	40	51
50	41	56	58	68	50	48	48
46	62	60	44	70	78	50	58
62	59	46	40	58	63	50	40
44	51	60	30	50	51	48	38
50	50	45	60	50	42	53	55
71	70	58	68	40	55	42	59
51	51	54	51	42	45	50	35
46	60	50	45	46	58	41	34
41	44	45	75	58	44	69	40
56	46	45	52	58	67	65	75
62	41	60	50	62	68	42	55
65	55	57	76	63	50	50	52
50	45	65	63	46	58	56	68
66	56	48	50	55	55	55	60
51	85	71	70	53	52	40	63
63	58	70	55	80	60	70	74
50	60	46	48	50	67	47	71
44	61	73	70	60	65	55	71
42	56	70	67	49	50	56	52
53	69	63	69	42	40	70	50
40	51	40	77	44	53	44	50
58	58	40	64	40	44	67	58
58	47	41	85	63	62	76	61
72	75	60	66	68	68	65	73
56	53	57	40	45	45	78	45
69	49	69	76	69	71	71	38

60	49	42	60	40	63	53	44
69	55	56	54	45	49	82	40
45	63	65	63	70	52	56	48
62	71	67	40	46	58	69	40
45	50	50	55	45	51	55	50
40	45	71	56	44	62	45	53
54	46	46	50	41	44	51	52
53	48	40	47	45	47	55	58
69	69	50	65	45	47	70	60
56	62	59	61	51	73	70	74
45	71	51	71	60	60	50	50
40	63	41	69	46	50	58	64
47	52	60	54	70	69	67	78
66	43	68	52	53	69	55	74
69	62	72	61	57	63	55	70
60	69	57	59	50	49	62	40
53	42	73	50	74	62	49	54
40	52	40	63	50	56	66	82
52	53	66	46	41	31	70	60
50	45	51	58	42	51	74	50
58	50	61	65	50	70	56	52
45	50	40	40	75	62	51	55
49	44	48	49	60	70	69	47
63	54	42	44	69	46	59	62
64	56	61	54	53	55	50	69
55	45	40	60	51	60	46	68
65	40	46	40	53	41	50	60
41	67	54	60	40	44	55	63
62	40	46	52	59	69	44	50
53	40	45	45	50	50	40	40
40	40	45	48	40	57	55	60
59	65	53	60	64	43	52	68
41	58	40	40	60	49	40	45
63	50	40	40	58	40	53	41
50	70	50	64	67	46	42	50
42	56	40	70	59	49	49	40
40	41	66	67	40	40	41	43
44	40	40	59	58	41	62	70
50	40	67	40	53	40	63	43
52	58	54	51	54	74	48	50
55	40	75	62	70	62	63	43
51	59	55	76	51	51	40	43
57	40	50	40	50	44	69	45
42	48	51	41	50	63	56	47
49	61	55	43	66	40	54	50
52	66	41	64	69	40		

MEAN

54.623

VARIANCE

114.274

STANDARD  
DEVIATION  
10.690

## AMRUY (AGE 17-25/MALE/2 MILE RUN/FORMAL PROGRAM)

774

13.8	11.2	10.6	10.6	13.8	12.8	12.6	10.3
12.2	13.5	16.0	15.7	12.0	14.7	15.0	12.8
12.2	12.7	12.6	12.4	12.4	14.4	10.9	13.5
12.2	11.3	12.2	12.6	12.1	13.0	12.2	17.7
12.6	16.4	15.8	12.2	12.1	15.7	13.1	14.0
11.8	12.4	12.7	13.1	12.8	13.2	16.2	16.4
15.5	15.3	15.5	14.3	17.5	17.1	17.5	12.8
14.0	16.1	15.6	13.0	14.9	11.9	13.5	13.2
13.7	14.2	11.5	16.4	12.5	16.1	14.1	15.3
13.5	12.8	19.3	15.7	12.5	14.1	16.5	14.7
13.1	15.1	13.8	15.5	12.8	11.9	12.6	17.3
13.0	12.9	13.0	12.9	13.0	13.7	13.3	14.4
14.1	13.5	15.6	13.9	14.2	15.5	15.4	12.9
14.2	15.9	14.7	13.5	12.6	14.9	17.9	11.2
14.7	16.0	13.8	16.0	14.9	11.8	14.9	11.7
13.3	14.5	11.8	13.8	12.7	14.5	12.9	12.5
14.3	13.4	17.3	15.8	14.1	15.8	14.7	11.8
14.4	17.5	15.8	16.0	12.5	14.0	14.3	14.3
13.9	14.9	12.8	15.5	14.8	16.8	13.6	18.0
16.3	14.7	15.3	13.9	16.5	16.5	16.1	14.4
15.7	16.3	16.6	15.9	17.3	13.6	14.7	13.1
15.0	16.0	17.8	16.4	15.7	15.4	17.0	17.5
14.3	14.5	13.2	15.0	15.5	12.8	13.3	14.3
15.5	17.8	15.7	15.8	17.3	17.2	15.3	15.0
15.4	12.8	15.7	16.2	15.3	16.2	17.9	16.2
13.2	15.8	14.0	16.0	15.3	14.5	16.2	14.0
14.1	12.3	14.1	15.2	13.7	16.6	13.8	17.0
12.1	17.5	13.1	17.2	14.8	14.1	14.2	13.8
16.1	15.1	16.4	17.8	14.1	14.0	14.0	16.0
16.5	16.2	14.0	12.6	15.5	15.8	14.9	13.8
13.9	13.3	11.5	12.6	15.6	18.0	16.1	13.2
15.0	15.3	17.7	15.5	20.0	16.1	17.5	15.9
17.9	15.4	14.5	17.1	15.8	13.7	17.4	17.5
18.0	17.9	17.3	12.9	14.0	17.9	14.8	16.8
14.8	15.7	14.0	15.5	15.0	13.8	16.5	13.3
12.9	17.2	12.8	13.9	13.5	13.7	16.3	14.5
15.4	14.9	13.7	12.8	15.9	14.3	12.0	17.5
14.8	12.8	15.4	11.6	13.5	14.9	12.4	11.9
10.9	13.0	15.7	17.0	16.8	15.7	17.1	14.0
15.1	12.6	16.4	15.8	16.9	14.2	17.2	16.2
16.3	16.3	13.1	16.9	14.7	15.4	12.5	13.0
16.1	12.4	17.0	14.8	15.3	13.0	17.9	13.5
14.0	12.4	12.0	11.6	15.1	14.8	15.0	12.1
15.0	15.4	11.6	11.9	13.9	14.0	11.2	13.8
11.3	13.2	12.8	14.5	15.0	15.8	11.5	13.8
13.0	14.0	14.3	10.8	15.4	14.8	14.0	12.9
17.0	16.0	13.3	11.5	17.1	15.4	14.5	15.1
14.3	14.2	17.8	11.4	15.3	13.9	14.5	15.3
14.8	10.8	14.8	14.2	14.3	15.7	16.9	12.8
14.7	16.6	13.7	14.6	14.3	16.5	16.2	15.3
16.0	16.0	14.9	15.2	15.2	13.7	14.0	17.1

20.2	13.1	19.2	16.0	13.7	16.2	15.9	14.0
16.6	13.1	16.9	14.3	15.8	17.9	17.8	16.0
15.0	15.1	13.7	14.4	11.6	16.7	14.1	15.7
13.3	16.4	12.3	14.7	15.2	14.9	13.3	16.6
15.7	17.3	17.8	15.5	16.2	13.9	16.4	13.2
12.5	13.7	13.9	15.5	17.9	13.9	13.5	15.2
14.3	14.8	14.2	15.0	16.0	17.2	16.2	11.3
14.6	14.4	15.9	16.2	19.2	14.1	13.0	15.2
12.4	16.5	13.3	12.7	14.0	17.0	15.3	17.9
15.0	15.6	13.6	14.7	16.8	15.2	13.1	16.7
13.9	13.1	15.0	16.9	16.1	15.9	13.9	13.3
17.5	15.8	15.4	15.7	14.9	15.8	13.3	14.0
16.3	15.8	15.5	16.0	14.0	12.2	16.0	14.5
15.0	13.5	16.5	16.3	16.0	13.5	15.8	11.8
15.2	14.6	14.7	17.5	14.0	15.2	16.8	16.3
14.2	14.9	15.0	14.8	14.9	13.8	15.3	14.6
14.9	15.1	17.8	14.4	13.8	17.5	13.3	16.4
14.4	14.3	16.9	15.4	12.9	15.1	14.4	13.2
13.7	12.5	16.6	12.8	18.2	16.6	13.2	14.3
17.3	15.8	11.9	17.6	16.8	12.5	12.7	15.6
13.9	14.9	15.2	13.9	15.5	17.8	17.9	19.5
16.2	14.9	17.9	16.8	14.9	12.7	14.4	16.6
13.5	14.4	14.8	17.0	13.7	14.3	14.7	15.6
13.0	20.5	14.5	15.8	13.4	12.5	15.0	17.1
14.4	15.1	15.9	13.9	13.0	16.6	14.3	10.2
12.1	16.1	15.2	13.4	15.8	16.8	17.8	16.5
14.9	15.4	15.4	16.4	16.9	16.3	15.5	14.9
14.7	16.9	16.3	12.5	18.3	13.1	13.9	15.5
14.1	17.9	13.7	14.8	14.3	20.6	16.5	12.6
15.3	12.1	15.6	11.9	16.3	13.5	16.3	16.5
15.9	15.1	17.8	14.1	15.8	13.5	16.3	14.5
11.7	14.3	13.2	15.2	16.2	16.1	14.0	12.3
16.5	13.2	16.5	13.8	12.9	16.5	15.8	16.4
15.8	16.2	19.7	18.5	16.3	15.4	14.8	16.4
16.1	13.8	14.4	15.9	14.2	15.1	14.9	13.6
15.0	15.4	12.5	14.7	15.7	20.0	15.6	13.3
15.7	13.3	16.0	11.7	16.6	15.9	15.1	15.7
19.8	15.6	15.7	16.7	15.7	17.0	14.1	14.8
15.7	17.8	15.2	12.5	16.4	17.5	13.7	12.2
14.5	12.9	13.7	16.2	12.9	13.8	17.5	17.7
13.6	13.4	13.9	17.8	17.5	12.4	13.5	14.8
15.5	14.9	11.6	14.5	11.5	14.7	12.2	17.9
13.8	15.0	14.0	16.5	17.4	15.1	13.9	16.1
15.5	15.5	17.4	14.3	16.6	16.4	13.9	17.3
14.2	12.9	17.9	13.5	13.4	15.5	16.5	20.7
21.1	14.6	13.4	12.4	12.9	17.8		

MEAN

14.841

VARIANCE

3,264

STANDARD  
DEVIATION  
1.806

## AFTPY (AGE 17-25/FEMALE/TOTAL POINT SCORE/FORMAL PROGRAM)

292

268	300	239	298	200	256	244	278
300	300	280	300	251	250	216	296
296	286	260	263	274	246	300	251
274	257	238	243	193	211	262	268
257	247	260	215	256	233	226	290
300	273	240	243	292	243	240	266
251	208	213	258	251	211	222	300
267	300	229	265	231	231	266	233
212	217	268	213	265	214	229	243
202	208	186	241	245	216	222	258
188	210	218	206	195	216	269	269
248	280	271	199	280	267	231	248
271	269	202	280	244	274	284	205
256	255	253	237	292	254	230	190
250	234	193	265	252	243	215	270
278	221	245	240	266	238	223	300
221	211	267	236	258	276	282	246
222	232	271	300	205	249	233	241
280	276	207	251	224	133	259	263
300	227	259	264	251	300	278	253
266	300	298	243	286	268	280	212
274	300	300	210	187	236	196	243
282	236	228	244	278	185	284	292
268	208	247	273	226	213	288	222
300	263	240	284	273	230	229	269
250	245	290	240	251	188	246	249
241	210	280	276	280	223	220	245
266	251	300	298	269	197	236	192
253	300	176	212	203	246	282	217
236	205	166	225	111	241	300	229
235	264	226	198	231	258	219	194
300	258	240	249	175	165	300	208
235	191	248	260	250	214	175	300
300	246	277	177	246	245	279	265
228	288	258	252	285	276	256	256
220	191	295	261	292	256	199	237
247	244	258	300				

MEAN

247.212

VARIANCE

1139.948

STANDARD  
DEVIATION  
33.763

## AFPUY (AGE 17-25/FEMALE/PUSHUP/FORMAL PROGRAM)

292

24	70	28	42	21	28	25	45
40	41	30	46	19	27	25	38
38	33	16	25	27	20	40	31
30	66	71	65	64	24	32	28
38	23	30	20	30	19	42	42
50	45	27	34	36	30	29	22
25	25	20	30	22	22	20	50
37	45	31	21	35	40	25	20
17	20	30	20	40	22	20	16
17	16	17	20	30	40	21	16
20	20	25	20	18	18	26	25
30	30	40	25	30	41	17	30
40	25	20	30	17	28	35	19
29	33	25	20	43	32	25	20
26	31	20	21	25	28	17	30
30	20	18	30	33	18	20	52
26	21	23	19	22	37	45	23
17	28	26	42	17	35	29	25
36	38	16	28	20	09	31	40
41	25	26	35	17	41	30	26
36	45	42	16	45	45	40	16
50	44	46	16	12	32	19	17
39	19	40	16	40	19	40	40
30	20	24	48	29	30	34	30
40	26	22	43	33	25	31	25
40	30	35	23	25	22	30	23
14	19	30	31	30	30	16	40
27	19	40	39	25	16	16	16
32	40	20	17	09	28	35	20
20	16	16	25	00	30	40	30
19	20	18	20	18	43	17	16
40	40	28	27	12	05	44	17
27	18	32	27	43	22	16	40
40	25	36	16	29	33	48	21
21	40	30	30	41	40	22	30
30	21	40	36	40	25	19	20
24	20	30	50				

MEAN

VARIANCE

STANDARD  
DEVIATION

28.832

116.408

10.789

## AFSUY (AGE 17-25/FEMALE/SITUP/FORMAL PROGRAM)

292

69	70	45	60	28	47	42	45
61	64	61	65	55	43	40	78
69	66	68	58	79	66	72	45
58	83	79	73	68	40	63	57
42	47	47	46	55	60	25	56
61	40	60	40	43	36	49	68
59	39	40	55	63	40	39	76
50	63	40	61	40	37	60	55
55	50	61	55	54	41	48	50
36	50	27	44	32	45	28	60
27	47	30	43	40	47	60	78
62	65	44	28	65	60	43	62
44	78	35	65	50	60	58	37
47	52	62	40	57	37	28	29
50	44	35	70	50	42	45	56
60	40	50	53	49	45	50	75
35	40	61	46	57	69	49	54
50	41	62	69	50	54	38	64
60	47	46	42	31	16	44	58
66	56	60	65	49	68	60	49
41	67	60	50	53	55	70	35
41	62	80	50	40	37	40	70
71	45	30	65	45	27	62	57
60	35	54	40	46	34	63	33
61	63	53	51	45	54	40	76
50	52	62	50	65	30	53	49
61	30	61	58	61	40	39	42
57	59	62	61	54	42	43	33
70	61	28	30	50	53	57	40
45	30	20	55	50	38	61	44
48	61	47	29	54	47	31	35
61	55	51	50	20	60	61	28
36	32	31	59	37	51	27	61
78	46	52	30	47	50	52	64
54	55	45	58	52	57	53	43
40	31	70	40	58	54	35	40
50	71	57	66				

MEAN

50.760

VARIANCE

168.341

STANDARD  
DEVIATION  
12.974

## AFRUY (AGE 17-25/FEMALE/2 MILE RUN/FORMAL PROGRAM)

292

15.0	12.6	10.6	15.1	19.3	13.8	15.9	13.6
12.8	12.2	12.1	14.6	17.2	13.0	19.3	16.1
13.5	14.3	15.6	16.4	16.5	18.5	15.8	17.5
16.2	18.0	18.0	16.0	21.8	19.9	19.0	16.8
18.2	15.0	15.7	19.6	18.0	19.6	14.8	15.2
14.3	17.0	20.3	18.5	13.4	17.6	17.5	16.9
18.2	20.5	19.2	17.8	17.9	19.6	18.0	15.7
17.8	15.4	19.3	15.5	20.6	21.9	17.8	20.4
20.6	19.8	18.0	21.8	19.1	19.4	18.3	16.6
19.6	21.0	20.9	16.6	16.8	18.4	18.2	16.0
21.3	20.8	18.1	20.6	22.2	19.4	17.0	14.8
20.2	14.2	17.5	19.9	14.2	20.2	17.5	20.2
17.5	14.8	19.6	14.5	16.8	17.1	14.6	19.6
17.3	18.3	18.2	17.0	15.6	14.9	15.4	21.1
17.3	20.7	21.8	16.3	15.2	17.7	19.1	16.3
17.8	18.4	17.0	19.4	17.3	17.4	19.2	14.2
18.6	20.3	16.6	17.5	17.2	18.5	13.6	17.7
18.9	18.5	16.5	14.5	21.9	19.8	18.3	19.6
18.0	14.5	20.3	15.6	17.5	21.4	16.1	20.0
15.2	20.3	17.7	19.4	17.3	16.9	16.6	17.0
17.0	16.9	17.1	15.6	17.7	18.7	18.7	18.3
15.6	15.3	16.7	20.7	20.4	18.5	22.2	18.7
18.3	18.9	20.8	18.3	16.5	21.6	18.3	15.4
17.8	19.1	17.7	16.7	20.0	20.7	16.1	19.3
16.8	17.7	17.9	17.2	17.0	19.4	19.4	16.4
22.3	18.9	16.8	17.9	18.5	20.3	18.9	18.8
17.9	18.3	16.0	15.9	16.9	16.3	17.9	19.8
15.8	17.7	16.4	15.9	16.2	21.9	12.1	20.6
20.0	17.1	24.0	18.1	18.4	16.4	17.0	18.9
17.5	18.5	21.7	20.5	28.5	17.9	16.9	19.5
14.3	15.8	18.3	19.7	18.0	19.1	17.5	21.6
15.9	19.9	18.8	17.7	18.3	25.1	17.2	18.3
17.7	21.1	17.1	17.8	18.7	21.2	23.4	15.7
14.8	15.2	14.8	23.4	18.0	22.1	17.7	15.6
19.2	16.5	16.9	19.1	15.6	18.4	16.9	17.1
20.5	22.0	17.5	17.4	17.3	15.5	20.4	16.0
17.5	18.8	18.1	17.0				

MEAN

17.857

VARIANCE

5.538

STANDARD  
DEVIATION  
2.353



## BMPY (AGE 26-30/MALE/TOTAL POINT SCORE/FORMAL PROGRAM)

302

270	244	267	260	218	221	202	218
258	290	273	300	275	274	292	293
212	227	202	210	284	228	186	219
230	208	197	213	220	280	227	234
220	220	204	225	220	194	220	183
198	260	235	218	272	214	230	236
245	196	227	246	215	230	208	188
210	205	203	239	257	229	218	209
198	242	227	238	237	217	207	300
231	258	249	198	227	191	214	263
245	225	232	273	205	248	224	240
203	188	259	196	288	200	300	245
210	209	263	272	233	197	210	250
225	200	254	219	213	257	211	243
236	224	204	206	230	252	282	272
259	269	292	292	239	300	199	226
294	257	300	201	174	204	205	237
216	217	227	219	195	268	204	222
205	189	212	227	214	300	213	213
228	180	195	249	215	271	240	246
202	210	257	246	218	296	204	234
225	300	236	272	300	186	221	249
245	300	219	200	286	289	245	259
205	194	220	199	205	199	284	234
199	218	236	275	296	233	284	181
241	202	268	288	190	227	285	222
234	212	205	203	216	278	244	224
219	218	210	226	268	265	255	184
248	278	233	198	190	224	230	242
199	199	292	180	188	208	218	201
267	217	223	263	219	170	239	214
236	259	246	246	203	188	230	187
264	296	274	203	203	226	274	282
271	300	253	201	247	257	209	230
266	242	184	236	260	180	300	243
189	190	202	202	192	226	234	280
198	198	230	218	224	210	208	213
217	206	278	228	256	200		

MEAN

232.248

VARIANCE

1013.596

STANDARD  
DEVIATION

31.837

## BMPUY (AGE 26-30/MALE/PUSHUP/FORMAL PROGRAM)

302

56	50	53	48	43	38	48	35
55	63	42	71	65	52	62	73
67	56	34	38	60	45	38	44
65	40	45	41	38	63	40	51
46	38	38	48	45	46	50	50
45	70	46	38	60	38	46	60
50	44	44	61	48	49	40	40
40	40	40	59	60	47	50	39
41	55	55	60	40	54	43	68
37	60	50	38	42	31	45	53
50	40	41	61	39	53	41	55
41	40	55	42	60	45	68	50
55	42	61	56	43	39	40	50
40	38	55	38	45	46	50	58
40	40	42	39	44	51	57	50
67	61	65	69	45	69	38	42
65	53	63	43	43	45	38	50
39	40	21	46	39	53	42	49
40	20	53	24	43	67	38	39
46	38	36	45	45	24	39	40
41	55	48	44	50	36	38	50
54	66	59	70	68	43	38	62
53	70	46	40	59	70	50	60
40	40	47	48	40	41	65	44
38	41	51	60	70	50	61	56
52	50	61	60	40	50	75	51
45	15	21	43	40	55	45	45
40	40	40	48	50	60	68	38
35	70	40	43	34	50	51	60
38	40	62	40	40	46	50	40
60	52	40	47	47	30	46	40
48	46	32	52	29	33	46	38
59	80	52	39	40	40	54	57
40	70	53	38	48	61	39	40
44	41	40	45	68	38	76	50
43	38	42	40	41	57	63	56
44	39	52	31	53	52	44	50
38	41	60	44	48	41		

MEAN

47.934

VARIANCE

114.275

STANDARD  
DEVIATION

10.690

## BMSUY (AGE 26-30/MALE/SITUP/FORMAL PROGRAM)

302

66	50	66	64	50	39	44	39
57	76	51	82	56	72	69	67
67	44	36	40	70	52	40	45
47	40	41	51	38	60	43	39
47	38	38	44	57	40	50	44
45	50	50	53	59	45	58	52
59	44	47	44	38	55	46	42
40	42	40	40	69	53	50	43
38	39	49	50	61	56	42	75
50	60	38	38	41	43	38	70
70	43	63	65	45	63	64	40
50	44	60	45	70	42	84	62
50	40	51	70	46	50	57	61
66	41	54	43	39	66	40	53
52	40	40	40	42	61	68	68
57	59	70	69	50	67	46	55
65	61	65	46	31	48	45	58
40	40	36	47	40	67	52	46
43	52	52	35	47	67	57	50
55	38	38	68	53	52	61	62
44	50	60	62	50	61	57	51
46	71	54	50	70	34	50	50
54	70	52	40	67	73	58	70
48	40	50	40	42	53	60	60
40	45	50	70	70	51	68	42
52	44	60	76	40	56	75	43
50	35	26	54	52	51	55	58
64	49	49	55	67	66	52	40
65	56	49	38	40	56	45	47
40	40	68	40	41	41	41	45
69	51	39	69	47	35	53	55
44	69	66	60	42	40	50	43
56	65	67	50	40	50	66	67
53	70	56	38	61	55	41	52
68	61	40	51	38	38	70	55
38	41	50	49	40	53	50	70
40	47	60	46	42	49	58	50
58	49	69	40	60	42		

MEAN

51.934

VARIANCE

120.919

STANDARD  
DEVIATION

10.996

## BMRUY (AGE26-30/MALE/2 MILE RUN/FORMAL PROGRAM)

302

10.6	13.4	11.4	13.5	15.7	11.9	17.1	11.2
12.6	13.3	13.4	12.2	14.1	13.4	13.7	14.3
16.1	15.8	14.6	15.1	14.0	15.5	17.9	15.2
18.0	15.4	17.3	16.2	13.1	12.6	13.2	12.6
14.5	13.3	15.4	14.5	16.8	17.8	16.5	16.5
17.1	14.6	14.1	15.5	13.4	15.1	15.8	16.5
14.4	17.3	14.4	15.1	15.3	15.7	16.1	17.7
15.2	15.8	16.0	14.5	16.4	15.3	15.8	16.7
15.9	14.9	16.1	16.1	14.0	17.1	15.3	13.1
12.1	19.0	14.9	16.1	13.7	16.7	15.1	15.0
16.7	12.5	16.2	15.5	16.2	15.8	17.4	13.7
17.3	18.5	14.0	17.6	13.5	17.1	13.2	15.5
19.5	19.4	13.5	13.9	13.2	17.8	17.3	14.7
17.7	16.1	13.6	14.2	15.2	14.5	16.2	15.3
12.5	13.7	16.1	15.5	12.8	14.5	12.0	13.6
16.0	14.1	13.3	14.5	12.7	12.2	17.0	15.3
13.3	14.3	14.8	16.2	18.4	17.5	16.5	15.6
14.3	14.3	18.1	15.2	16.9	14.3	17.6	15.5
16.1	16.0	18.0	18.5	15.9	13.6	16.8	15.9
15.5	18.5	16.3	15.7	16.8	16.5	14.6	14.2
16.7	18.5	12.8	14.7	16.6	17.1	17.8	14.8
15.7	12.9	16.5	12.3	13.8	17.3	14.8	15.3
14.2	13.6	16.2	16.7	13.5	14.8	14.5	17.0
16.7	17.0	15.1	17.4	15.6	18.4	13.2	16.5
16.3	14.9	14.5	15.1	13.9	14.9	14.2	23.1
15.9	17.8	14.5	11.6	17.6	16.2	14.9	15.3
14.0	19.0	21.8	17.1	16.9	13.3	12.9	16.1
17.6	14.8	15.9	16.1	14.9	15.9	15.7	18.3
14.1	13.3	12.4	17.9	18.1	16.6	14.7	15.2
16.2	16.5	12.6	18.5	18.0	16.3	15.5	16.8
16.1	18.7	12.9	14.3	15.8	17.6	13.7	16.5
12.7	14.5	13.0	15.2	15.6	17.0	14.7	18.1
13.5	12.8	13.7	17.0	16.0	14.4	13.2	13.5
11.8	13.3	13.4	15.3	15.7	14.5	15.2	14.2
12.1	14.5	17.4	13.9	12.1	18.6	11.3	14.2
17.8	17.4	17.6	17.1	19.4	17.3	16.2	13.2
16.2	17.3	16.0	16.3	14.5	16.9	17.1	17.2
16.6	16.4	14.7	13.2	12.8	16.3		

MEAN

VARIANCE

STANDARD  
DEVIATION

15.384

3.526

1.878

## BFTPY (AGE26-30/FEMALE/TOTAL POINT SCORE/FORMAL PROGRAM)

88

224	278	300	253	266	191	300	298
270	257	186	186	276	246	243	274
235	190	203	223	288	201	260	272
233	221	208	202	174	198	264	300
264	300	274	198	255	270	160	269
256	238	274	260	280	200	237	262
300	272	145	180	300	227	270	276
260	263	300	274	207	242	300	272
241	261	233	300	278	274	227	272
261	208	221	270	187	266	246	232
260	280	249	266	272	245	240	278

MEAN

VARIANCE

STANDARD  
DEVIATION

248.545

1336.090

36.552

## BFPUY (AGE 26-30/FEMALE/PUSHUP/FORMAL PROGRAM)

88

25	27	40	71	45	21	39	37
50	16	42	17	26	12	27	25
18	17	38	20	38	23	15	33
28	16	21	21	18	15	30	41
30	40	25	20	33	38	20	23
25	17	25	32	28	15	27	17
38	25	19	15	40	30	40	36
32	23	39	20	21	36	38	30
24	24	34	39	27	38	18	38
16	20	17	30	19	21	25	20
15	29	18	21	32	40	21	27

MEAN

VARIANCE

STANDARD  
DEVIATION

27.523

100.230

10.011

## BFSUY (AGE 26-30/FEMALE/SITUP/FORMAL PROGRAM)

88

25	51	51	82	31	28	60	56
40	49	38	26	60	49	43	70
40	30	30	40	52	34	51	42
32	40	37	35	19	37	60	64
60	51	51	41	46	35	13	60
48	51	61	37	53	40	60	65
51	50	37	25	64	40	48	41
47	48	69	41	40	44	51	45
46	51	45	56	51	51	51	37
51	40	46	49	25	57	48	51
53	50	55	62	43	41	46	63

MEAN

VARIANCE

STANDARD  
DEVIATION

46.398

142.357

11.931

## BFRUY (AGE 26-30/FEMALE/2 MILE RUN/FORMAL PROGRAM)

88

18.0	12.8	13.9	11.9	16.3	18.9	15.3	16.1
18.0	16.3	18.8	21.7	16.7	17.4	15.3	15.5
17.8	21.6	19.4	19.2	18.4	21.7	16.5	16.8
18.4	18.9	19.9	21.2	21.2	20.8	19.2	15.7
19.2	16.5	16.0	23.6	19.5	16.3	21.5	15.0
18.3	19.4	15.7	16.7	16.5	18.2	21.0	17.2
15.0	16.3	20.2	22.5	16.5	21.3	19.6	17.0
19.2	16.7	16.2	18.6	21.7	22.4	17.0	16.2
19.3	18.1	20.5	16.9	15.6	19.6	21.5	16.3
14.6	21.3	20.4	18.3	21.5	17.2	19.5	20.6
16.3	17.3	18.7	14.1	17.3	21.1	18.8	15.9

MEAN

VARIANCE

STANDARD  
DEVIATION

18.151

5.761

2.400



## CMTPY (AGE 31-35/MALE/TOTAL POINT SCORE/FORMAL PROGRAM)

161

238	268	221	249	253	231	300	244
193	229	237	290	192	190	239	195
216	183	236	214	300	288	300	252
284	300	266	220	205	195	230	202
292	300	219	287	181	201	206	245
258	198	203	298	278	300	242	214
210	300	225	215	238	272	192	288
232	251	178	280	220	214	206	252
276	221	206	286	256	188	217	239
195	260	228	221	216	275	290	217
203	212	235	208	272	212	204	300
244	237	156	198	189	280	204	265
268	189	257	271	237	300	300	206
227	244	217	282	200	227	205	269
213	151	265	230	227	300	249	210
263	246	288	209	218	239	274	220
284	215	199	204	270	233	221	239
199	284	234	226	236	250	202	222
189	218	214	224	207	215	209	207
290	273	210	226	196	235	224	151
191							

MEAN

VARIANCE

STANDARD  
DEVIATION

235.174

1270.045

35.638

## CMPUY (AGE 31-35/MALE/PUSHUP/FORMAL PROGRAM)

161

42	56	34	57	48	40	66	44
40	54	48	62	59	54	37	35
46	36	46	35	62	55	63	51
70	66	54	46	45	36	40	28
65	61	41	68	33	36	41	45
61	38	33	66	62	61	33	33
33	61	41	39	51	45	34	63
50	44	34	51	43	46	42	43
49	37	37	54	38	35	41	52
36	62	50	33	50	61	60	42
34	40	48	48	56	23	35	49
50	46	19	33	35	61	33	65
41	33	62	44	53	64	61	40
37	52	50	58	36	51	50	63
48	29	56	55	40	90	63	39
70	60	55	51	45	49	65	33
63	37	33	43	61	52	50	40
50	54	40	37	50	50	35	36
33	37	48	33	34	33	40	40
56	59	40	50	33	35	40	33
38							

MEAN

VARIANCE

STANDARD  
DEVIATION

46.708

133.358

11.548

## CMSUY (AGE 31-35/MALE/SITUP/FORMAL PROGRAM)

161

45	54	36	45	54	40	65	49
37	39	46	60	62	82	78	39
50	36	50	40	70	65	66	50
57	66	55	47	50	46	39	42
60	45	50	69	36	39	45	58
64	40	50	64	68	76	61	47
52	65	49	44	44	69	40	59
50	55	27	67	49	44	45	56
68	42	53	70	67	36	55	52
43	60	50	37	55	65	61	47
33	44	45	38	52	40	47	79
43	60	40	45	40	55	40	41
70	41	52	74	51	68	66	41
48	54	53	63	44	51	40	45
39	24	63	48	57	85	36	44
50	50	67	39	50	53	50	36
67	45	39	47	46	47	40	49
45	64	43	44	55	48	40	45
36	38	40	44	40	50	41	40
66	53	50	36	48	50	45	33
42							

MEAN

VARIANCE

STANDARD  
DEVIATION

50.422

130.695

11.432

## CMRUY (AGE 31-35/MALE/2 MILE RUN/FORMAL PROGRAM)

161

11.5	12.9	14.2	12.4	12.8	12.2	12.6	13.0
18.1	16.9	15.8	14.1	17.4	20.3	16.9	17.5
17.6	19.2	15.2	15.2	13.1	14.3	12.2	13.1
13.2	12.1	11.2	14.5	19.3	18.7	13.5	14.9
14.8	13.9	16.5	15.0	19.1	16.8	17.6	15.4
19.1	18.0	17.6	14.1	16.5	12.3	15.1	15.9
16.9	12.3	15.8	16.0	15.0	13.5	17.8	13.2
16.2	13.5	17.1	13.1	16.6	17.0	17.7	11.9
13.6	14.8	18.1	13.5	14.8	18.1	17.6	16.2
18.3	17.5	15.6	14.3	17.1	14.9	14.3	16.6
16.1	16.6	14.9	17.3	14.3	21.4	17.6	16.5
17.0	17.0	21.3	17.6	18.5	12.9	16.2	13.9
13.2	18.3	16.0	14.0	16.5	13.8	14.2	15.7
16.1	16.0	18.7	14.8	17.6	17.2	19.2	13.2
16.9	20.0	14.3	17.4	15.5	11.9	15.1	16.7
15.2	16.9	14.3	17.9	17.2	15.6	13.5	12.8
14.8	15.8	17.3	18.5	14.0	16.2	16.4	13.3
18.4	13.7	13.6	14.2	16.5	14.1	16.8	15.0
17.5	14.8	16.9	14.6	16.0	16.2	16.7	16.7
12.6	14.1	17.7	15.3	18.3	14.2	15.3	24.3
19.1							

MEAN

VARIANCE

STANDARD  
DEVIATION

15.753

4.855

2.203

## CFTPY (AGE 31-35/FEMALE/TOTAL POINT SCORE/FORMAL PROGRAM)

41

269	288	225	263	222	296	224	271
278	259	219	250	261	265	259	269
267	219	276	266	225	294	173	183
249	300	300	269	225	257	250	231
263	274	243	251	250	267	241	270
263							

MEAN

VARIANCE

STANDARD  
DEVIATION

254.244

794.589

28.188

## CFPUY (AGE 31-35/FEMALE/PUSHUP/FORMAL PROGRAM)

41

39	32	15	20	20	34	20	21
23	15	20	11	15	20	20	19
20	18	26	40	17	31	03	14
25	37	38	20	17	23	23	40
16	23	27	20	21	20	19	27
18							

MEAN

VARIANCE

STANDARD  
DEVIATION

22.610

66.944

8.182

## CFSUY (AGE 31-35/FEMALE/SITUP/FORMAL PROGRAM)

41

38	46	31	40	30	41	27	30
60	41	50	43	45	46	40	41
41	40	52	51	49	55	32	35
25	41	50	40	25	38	30	25
42	73	25	61	29	39	50	42
45							

MEAN

VARIANCE

STANDARD  
DEVIATION

41.073

114.169

10.685

## CFRUY (AGE 31-35/FEMALE/2 MILE RUN/FORMAL PROGRAM)

41

17.2	17.7	20.8	19.5	17.9	19.5	21.1	19.3
15.9	19.2	23.5	17.0	16.4	19.6	20.0	17.9
19.6	20.7	16.1	21.1	21.3	19.0	22.4	21.6
17.7	17.5	15.8	17.8	14.9	17.5	19.5	23.7
16.7	19.5	19.0	22.5	19.0	18.5	21.8	21.0
17.8							

MEAN

VARIANCE

STANDARD  
DEVIATION

19.134

4.622

2.150



## DMTPY (AGE 36-39/MALE/TOTAL POINT SCORE/FORMAL PROGRAM)

66

214	262	212	290	238	251	197	202
300	222	198	300	300	195	275	247
266	272	300	181	203	292	225	265
218	238	205	260	269	205	199	244
282	300	258	248	221	242	218	284
195	212	188	195	199	274	217	235
212	234	186	300	196	245	277	220
219	236	219	211	187	229	224	222
261	290						

MEAN

VARIANCE

STANDARD  
DEVIATION

237.590

1261.045

35.511

## DMPUY (AGE 36-39/MALE/PUSHUP/FORMAL PROGRAM)

66

32	42	32	65	21	45	33	36
60	54	40	60	40	33	71	40
36	62	65	32	44	56	34	45
38	49	40	43	41	35	35	50
64	68	42	51	39	45	45	75
38	45	32	33	40	55	29	47
34	38	33	50	32	41	62	32
50	43	37	40	32	39	32	53
53	70						

MEAN

VARIANCE

STANDARD  
DEVIATION

44.364

143.219

11.967

## DMSUY (AGE 36-39/MALE/SITUP/FORMAL PROGRAM)

66

34	59	34	58	61	52	36	40
78	40	40	54	44	45	70	62
62	46	65	34	42	65	39	59
50	46	40	36	71	40	40	55
56	72	57	40	46	45	34	76
37	40	42	34	42	55	51	50
40	42	36	71	35	50	53	34
38	39	37	43	34	36	38	47
46	70						

MEAN

VARIANCE

STANDARD  
DEVIATION

42.924

148.071

12.168

## DMRUY (AGE 36-39/MALE/2 MILE RUN/FORMAL PROGRAM)

66

15.3	12.6	15.5	12.3	13.4	13.9	16.6	17.4
14.2	17.9	18.8	14.1	16.1	19.0	17.0	16.3
12.5	14.6	14.9	19.2	18.8	12.8	13.0	14.9
16.9	15.7	17.5	19.7	11.9	17.0	17.7	16.5
14.2	14.1	15.7	14.8	15.3	14.8	16.2	16.0
18.3	17.3	19.3	17.2	19.0	14.5	16.1	16.0
16.3	12.9	18.9	17.9	17.1	14.5	14.1	18.0
17.2	12.4	16.4	17.2	18.2	13.6	12.4	19.0
15.8	15.6						

MEAN

VARIANCE

STANDARD  
DEVIATION

15.914

4.332

2.081

DFTPY (AGE 36-39/FEMALE/TOTAL POINT SCORE/FORMAL PROGRAM)

10

255	225	242	300	260	272	269	300
256	297						

MEAN

VARIANCE

STANDARD  
DEVIATION

267.600

645.156

25.400

DFPUY (AGE 36-39/FEMALE/PUSHUP/FORMAL PROGRAM)

10

23  
1615  
29

21

30

13

20

21

35

MEAN

22.300

VARIANCE

50.456

STANDARD  
DEVIATION  
7.103

DFSUY (AGE 36-39/FEMALE/SITUP/FORMAL PROGRAM)

10

31	31	23	31	32	31	32	31
37	31						

MEAN

VARIANCE

STANDARD  
DEVIATION

31.000

11.333

3.367

DFRUY (AGE 36-39/FEMALE/2 MILE RUN/FORMAL PROGRAM)

10

16.9	20.8	20.7	19.5	17.8	16.9	21.2	16.8
19.9	16.5						

MEAN

VARIANCE

STANDARD  
DEVIATION

18.700

3.609

1.900



APPENDIX F

Computed Results - No Formal Program

## AMTPN (AGE 17-25/MALE/TOTAL POINT SCORE/NO FORMAL PROGRAM)

454

294	200	213	260	250	199	233	185
212	276	229	199	272	187	197	251
296	163	201	296	224	187	235	221
194	284	261	266	289	170	273	284
265	228	222	214	217	224	154	179
229	239	276	300	228	265	290	279
178	205	207	252	262	207	230	205
275	231	239	189	199	208	198	140
276	266	300	196	185	297	214	199
190	264	222	186	266	276	256	196
212	232	220	276	216	234	300	242
252	198	230	178	257	210	258	244
290	252	234	195	186	200	195	135
233	248	237	284	200	264	248	216
224	254	212	222	272	237	208	161
266	214	225	197	229	216	221	203
210	217	261	221	246	209	243	226
239	194	219	213	226	188	233	222
185	209	215	216	196	228	213	216
199	193	201	192	261	258	199	199
226	268	213	226	230	225	183	212
249	272	221	242	280	216	268	272
252	260	185	239	204	237	286	219
264	246	193	196	230	267	204	207
199	208	201	214	217	198	203	285
233	260	256	231	210	197	228	290
199	186	238	209	181	153	241	232
242	205	246	229	225	236	243	215
227	266	206	291	286	216	229	187
226	186	206	259	230	192	213	213
294	194	212	213	242	226	267	201
243	258	229	222	216	212	188	232
176	205	223	231	175	242	244	263
212	251	220	227	200	282	258	180
195	228	216	192	300	210	215	243
233	228	246	268	214	200	227	229
300	243	275	190	202	229	293	243
269	224	199	253	168	242	248	296
218	223	225	269	245	289	290	265
257	198	250	276	300	229	264	197
230	217	287	176	211	282	211	241
277	230	205	173	278	219	285	234
243	217	300	285	208	286	266	196
265	244	248	230	225	239	266	300
195	205	221	189	233	217	297	244
219	224	229	224	245	231	240	203
212	243	292	250	261	245	289	187
168	252	233	187	209	199	225	252
148	219	300	191	194	300	275	272
245	264	195	204	196	209	213	268
220	194	182	300	243	217	203	253

215	201	181	211	253	189	203	278
227	253	248	235	225	276	292	202
203	228	258	285	250	182	270	188
300	241	221	217	186	231	193	247
243	257	259	245	232	251	250	288
198	211	237	261	203	213		

MEAN

VARIANCE

STANDARD  
DEVIATION

230.683

1123.184

33.514

## AMPUN (AGE 17-25/MALE/PUSHUP/NO FORMAL PROGRAM)

454

70	40	61	70	52	54	50	49
54	59	53	47	62	43	46	46
69	43	43	66	48	39	60	70
40	70	69	65	75	40	68	70
70	52	50	60	44	47	30	40
65	69	69	68	57	92	70	61
42	45	53	65	63	40	38	53
70	50	43	45	46	40	42	25
56	60	71	45	43	70	45	44
40	72	60	41	70	65	59	41
47	45	47	70	46	60	75	60
50	45	43	50	65	60	63	60
72	69	40	40	40	40	55	26
70	63	68	73	40	53	51	45
55	56	37	50	70	40	46	40
68	48	55	50	53	43	58	43
55	40	50	50	50	46	60	55
65	32	52	50	50	50	52	58
43	55	52	47	50	60	52	38
54	40	45	40	64	65	58	42
61	70	50	59	62	52	32	42
55	65	40	58	70	50	60	62
50	49	40	48	46	50	69	60
60	61	42	40	50	50	46	50
40	49	40	46	40	40	45	69
73	59	60	62	49	45	50	65
40	38	51	41	41	37	55	56
60	43	57	45	45	56	45	44
49	60	45	83	60	43	59	42
57	42	40	62	40	42	50	50
70	43	40	45	45	46	63	43
50	56	45	46	52	50	41	57
34	42	49	46	41	51	40	45
41	41	45	60	40	61	59	40
40	52	41	40	69	50	40	60
40	43	45	56	42	40	47	46
70	42	60	40	41	41	79	60
70	41	41	61	33	44	60	65
63	40	47	65	50	70	67	45
67	38	53	68	72	60	45	42
68	52	70	42	41	69	41	40
66	48	47	43	57	50	68	40
62	54	70	67	46	69	51	38
68	60	50	45	46	58	65	73
43	51	52	52	40	42	69	60
50	45	50	64	40	45	41	45
45	59	41	41	56	48	68	45
41	54	48	40	47	32	41	51
18	40	70	42	55	73	70	60
70	70	40	50	45	50	55	70
49	41	36	74	53	53	41	68

88

50	45	28	44	57	41	50	68
57	70	60	49	41	63	84	45
40	51	52	95	49	41	50	49
75	43	55	53	50	50	35	48
51	63	62	64	40	68	58	72
50	50	61	70	53	55		

MEAN

VARIANCE

STANDARD  
DEVIATION

52.368

129.959

11.400

## AMSUN (AGE 17-25/MALE/SITUP/NO FORMAL PROGRAM)

454

70	40	50	61	70	40	44	47
48	69	50	56	61	40	44	70
70	32	56	69	60	50	70	46
41	65	57	61	70	42	67	85
69	61	53	44	60	47	39	40
53	59	58	70	55	70	78	66
41	45	45	42	70	60	60	52
91	50	70	44	48	40	42	35
75	60	70	51	40	69	47	55
32	60	47	45	59	60	55	43
50	63	60	68	60	60	69	60
69	40	50	33	50	52	62	40
73	55	60	50	42	40	41	46
40	55	40	72	45	70	71	46
50	63	50	53	69	70	43	40
66	56	60	46	50	50	47	50
45	58	69	51	74	50	68	51
58	52	44	50	54	44	59	60
41	40	51	45	58	45	53	51
50	50	47	40	68	70	41	56
51	60	46	59	52	50	40	46
75	60	55	50	70	52	69	70
71	77	40	59	50	55	62	40
47	40	48	40	50	75	55	50
49	50	43	56	57	43	45	69
54	83	62	50	40	56	49	67
46	55	49	45	42	27	47	50
42	40	62	50	52	54	60	54
40	52	41	86	78	45	54	42
43	38	45	65	55	45	50	41
70	40	40	40	58	50	70	40
60	60	50	51	40	45	40	46
38	47	59	54	36	51	70	69
44	64	56	40	45	70	42	40
59	55	40	40	70	45	40	53
58	45	60	65	60	55	45	52
75	63	68	40	50	48	77	56
54	50	42	58	41	70	60	75
51	50	50	70	55	69	69	70
55	45	70	70	71	50	70	47
41	44	70	42	41	69	49	70
70	61	45	49	69	59	71	55
50	44	80	73	54	70	70	47
68	45	69	61	57	60	68	70
45	50	44	42	66	48	69	61
61	64	40	57	71	53	63	43
50	62	61	66	73	53	64	42
41	68	65	46	46	51	53	70
41	51	70	41	44	69	68	70
50	62	50	50	44	43	45	65
50	41	42	73	65	60	51	61

90

50	45	53	46	69	43	51	69
53	50	60	71	60	65	90	45
45	60	67	69	62	45	84	41
83	67	52	64	50	50	46	78
70	63	73	59	68	60	68	74
50	46	61	70	44	40		

MEAN

VARIANCE

STANDARD  
DEVIATION

55.101

134.029

11.577

## AMRUN (AGE 17-25/MALE/2 MILE RUN/NO FORMAL PROGRAM)

454

13.7	15.5	18.4	16.0	15.7	17.2	13.1	20.2
16.7	13.8	14.8	18.2	12.0	17.4	17.0	14.8
13.5	19.1	17.7	13.1	16.2	18.3	19.8	19.0
16.3	13.9	15.1	14.5	14.4	20.3	15.6	14.9
17.2	16.4	15.5	17.1	16.5	14.3	20.7	17.9
17.6	18.1	13.3	13.0	16.1	17.3	14.3	13.1
19.0	16.0	16.8	13.5	16.4	17.2	14.2	17.9
16.0	14.1	15.9	17.9	17.3	14.5	16.1	20.4
12.4	13.1	13.0	17.9	17.6	13.4	15.2	17.9
15.1	15.2	16.5	17.8	14.7	12.3	13.2	16.4
16.0	15.6	16.5	15.7	16.9	14.5	12.3	15.9
15.2	16.3	13.5	17.9	14.0	19.2	15.3	12.7
14.3	15.9	14.0	17.3	17.4	15.5	18.0	26.0
16.3	15.1	15.8	15.0	16.1	14.1	15.8	14.9
15.6	14.3	14.9	15.5	16.4	15.9	15.7	22.2
16.5	16.7	17.0	17.8	14.8	15.2	16.3	16.7
15.8	15.6	14.2	15.5	14.0	16.4	17.8	15.5
17.0	16.7	15.1	16.4	15.3	19.3	15.4	18.0
17.8	16.2	16.5	15.0	20.4	15.5	17.0	14.7
19.0	17.6	16.8	16.4	16.5	17.3	18.2	17.8
16.3	14.8	15.8	17.3	16.7	15.1	16.5	15.0
16.2	13.5	14.8	14.0	15.5	16.2	15.1	15.4
15.3	14.1	17.3	14.2	16.9	13.5	12.5	16.1
13.1	12.1	17.6	16.0	14.4	13.6	17.7	17.0
16.8	17.0	15.9	16.5	15.6	16.0	16.4	15.0
18.1	15.5	16.0	16.4	15.4	18.7	14.6	12.7
16.4	19.4	13.3	15.1	18.3	18.5	13.1	14.9
13.3	15.2	15.3	13.9	14.5	14.7	13.6	15.9
13.4	14.6	15.7	14.2	13.1	14.6	16.3	17.6
15.4	16.9	15.7	15.6	13.7	17.3	16.4	15.3
13.8	16.5	14.2	14.5	13.3	14.5	15.9	15.8
14.3	13.1	13.8	14.9	15.0	15.8	17.1	14.5
17.2	16.0	16.2	14.0	17.7	12.6	15.0	13.4
14.7	12.8	15.7	15.1	15.8	13.6	13.8	17.9
17.9	15.4	15.8	16.5	13.2	16.1	13.8	14.8
13.7	12.9	13.5	13.1	16.8	17.3	13.7	14.2
13.0	13.9	13.9	16.8	16.6	12.8	13.9	15.2
13.7	14.0	16.0	14.4	19.3	15.8	15.2	13.0
18.5	13.9	14.6	16.1	11.5	14.4	14.0	12.7
15.1	16.1	15.9	16.3	12.7	16.0	13.1	16.9
16.8	17.0	14.6	19.5	14.4	15.3	16.2	15.4
15.4	17.8	16.4	22.0	12.7	16.8	14.9	14.8
15.0	15.6	12.6	14.0	16.0	14.8	13.7	16.6
16.0	16.1	15.7	15.4	15.3	15.8	16.3	12.7
17.1	17.3	14.9	18.9	15.7	14.7	13.5	16.0
17.3	16.8	13.3	19.1	14.0	14.0	14.2	16.1
15.9	16.1	17.8	13.7	15.8	13.5	13.8	17.9
20.7	15.5	16.4	17.7	15.9	15.9	14.2	15.4
18.4	14.5	12.7	16.9	18.8	12.3	15.9	14.5
16.0	15.7	17.2	17.3	17.0	16.0	16.4	15.9
15.3	16.5	17.3	13.1	16.8	17.7	15.8	15.7



16.5	16.6	17.9	15.4	16.2	17.3	17.8	15.8
16.0	15.2	15.2	17.2	15.3	13.9	14.1	16.5
15.8	16.1	14.4	15.0	15.4	18.8	11.8	18.3
12.6	15.3	17.4	19.3	20.9	14.2	16.5	15.7
16.5	15.7	16.5	16.4	16.5	17.1	16.2	14.5
18.4	16.2	17.0	17.8	16.8	15.8		

MEAN

VARIANCE

STANDARD  
DEVIATION

15.751

3.390

1.841

## AFTPN (AGE 17-25/FEMALE/TOTAL POINT SCORE/NO FORMAL PROGRAM)

331

200	216	241	191	273	238	300	274
263	282	224	249	243	269	266	214
202	208	258	247	234	207	268	241
224	242	190	263	228	189	249	199
226	258	253	300	227	215	274	296
182	215	193	300	222	229	243	230
201	243	241	239	300	215	190	263
198	218	300	235	241	262	208	276
247	196	277	300	259	278	300	227
249	208	265	215	220	263	206	209
190	201	300	276	219	243	224	259
265	284	188	214	296	260	241	261
281	267	252	294	167	248	253	267
298	211	286	282	204	229	234	248
264	197	300	300	229	213	265	197
300	256	190	209	240	233	240	221
300	225	269	253	237	210	294	227
207	254	213	250	226	263	226	197
206	223	219	210	231	225	164	300
230	300	283	245	226	237	278	198
241	207	266	283	204	227	215	219
300	205	258	186	232	210	185	198
206	272	209	298	197	283	210	213
211	195	221	235	272	227	286	266
253	292	196	259	234	260	218	197
212	195	204	202	187	205	176	256
288	229	203	247	196	272	249	225
203	186	255	225	267	218	300	206
274	219	229	256	219	278	262	223
256	214	211	216	225	300	213	182
261	288	192	221	300	266	216	208
248	282	246	264	244	238	213	194
218	264	202	236	211	189	201	226
193	266	203	208	276	282	250	247
232	212	247	188	179	186	208	213
265	189	206	269	207	227	272	298
196	194	224	210	252	214	221	278
266	256	278	195	214	187	250	193
213	300	236	296	214	270	254	224
268	222	245	198	278	260	210	220
239	291	202	195	205	216	266	223
284	204	264					

MEAN

VARIANCE

STANDARD  
DEVIATION

236.952

1128.543

33.594

## AFPUN (AGE 17-25/FEMALE/PUSHUP/NO FORMAL PROGRAM)

331

19	21	22	18	40	38	42	31
41	40	31	52	25	25	41	43
17	19	30	32	40	30	49	50
20	40	18	40	31	16	36	17
25	50	43	50	22	20	40	45
17	23	18	42	30	20	40	42
17	21	24	35	44	21	16	21
21	26	41	30	30	20	22	35
38	20	36	42	40	43	42	35
30	27	40	30	21	35	17	29
20	20	40	35	29	40	26	37
21	40	20	17	44	30	21	41
40	30	29	41	32	16	33	23
42	28	36	40	21	25	23	34
40	18	40	43	24	16	40	24
40	35	34	25	35	29	46	31
75	25	42	38	39	17	45	20
20	30	16	20	20	40	17	20
27	32	30	18	30	36	32	43
21	43	55	23	19	23	30	17
23	27	22	45	29	22	30	32
40	26	35	18	32	30	20	25
16	27	25	41	20	40	20	18
25	24	19	25	28	30	40	40
23	36	20	28	26	28	20	20
20	18	25	17	18	20	12	30
38	20	26	25	16	31	20	32
17	16	25	25	40	25	41	26
36	21	17	31	26	40	24	17
35	20	19	27	30	40	20	17
42	45	20	22	40	30	17	24
30	36	30	20	28	21	24	18
17	24	17	25	26	16	24	16
17	31	19	20	30	40	31	38
32	18	19	40	23	19	22	30
23	25	29	25	20	30	35	44
25	22	30	21	40	18	17	39
40	40	32	17	37	25	30	25
23	42	35	38	25	27	49	32
38	30	30	30	40	40	21	29
28	38	33	16	20	16	40	22
50	22	33					

MEAN

VARIANCE

STANDARD  
DEVIATION

29.069

91.150

9.547

## AFSUN (AGE 17-25/FEMALE/OUTUP/NO FORMAL PROGRAM)

331

40	51	50	32	40	45	65	72
61	49	40	60	41	66	49	28
43	30	70	38	36	40	39	40
61	41	35	30	50	36	40	31
40	60	34	84	28	30	61	66
28	43	38	61	48	40	48	28
38	45	40	47	63	55	35	60
40	34	62	55	50	60	35	63
40	40	52	76	48	64	61	40
50	40	50	33	50	48	30	38
30	40	61	53	47	40	51	32
62	78	27	57	59	66	43	55
62	61	61	58	36	55	40	68
60	40	59	56	40	38	40	45
60	42	70	62	61	36	61	32
63	56	40	39	55	50	55	34
80	37	36	54	40	40	71	60
30	43	40	68	57	41	70	36
46	50	45	49	55	35	40	66
61	72	50	45	30	60	67	35
41	30	42	50	35	50	41	26
61	37	45	27	35	31	35	42
26	60	37	70	45	50	45	55
35	30	45	33	70	40	65	42
63	62	30	50	30	55	52	30
45	40	47	28	28	38	30	39
60	61	39	60	37	56	52	39
35	30	53	62	50	60	63	44
62	43	58	72	50	58	58	29
60	51	52	40	41	61	48	28
48	55	40	42	61	65	44	45
62	71	41	76	49	40	43	30
40	59	42	63	46	30	35	47
40	65	42	45	59	61	57	54
33	48	69	47	29	34	45	40
60	40	40	61	50	50	51	72
30	42	27	40	35	31	72	61
65	54	57	37	44	27	61	27
50	69	33	61	52	59	42	47
75	47	76	34	67	61	40	60
65	52	54	38	54	47	60	57
55	27	70					

MEAN

VARIANCE

STANDARD  
DEVIATION

48.205

164.533

12.827

## AFRUN (AGE 17-25/FEMALE/2 MILE RUN/NO FORMAL PROGRAM)

331

21.2	20.5	17.6	21.2	16.7	21.1	15.0	17.6
22.3	16.8	19.9	24.0	15.1	17.2	18.2	22.5
20.9	18.5	18.9	17.6	20.6	23.3	17.4	20.1
22.2	20.1	22.2	16.6	19.2	22.2	18.3	19.2
18.3	22.0	18.0	16.9	17.0	17.9	19.2	17.4
22.0	19.4	22.2	15.1	21.7	17.6	21.6	19.9
20.0	16.9	16.7	19.8	16.1	21.5	21.5	16.0
22.0	18.8	15.3	20.5	19.0	17.0	19.3	18.0
19.0	22.8	14.6	16.5	19.0	19.0	17.0	20.3
18.0	21.8	18.5	20.0	19.5	17.8	18.6	22.2
21.5	22.3	17.1	17.1	21.9	20.0	20.0	17.1
14.0	18.3	21.2	22.0	16.0	18.8	15.8	19.5
18.7	18.0	19.4	15.7	29.9	15.9	17.6	14.8
14.8	21.8	17.3	17.8	20.2	20.3	17.6	18.5
21.1	21.2	16.4	17.1	21.9	18.4	20.9	21.3
16.9	19.2	29.1	20.2	21.7	19.5	21.7	19.8
12.8	18.0	16.9	19.8	20.8	19.2	17.5	20.8
18.8	17.2	18.8	18.3	19.9	17.9	21.0	21.3
21.6	20.9	22.1	20.6	21.3	20.9	19.6	15.6
21.0	15.7	16.3	15.3	15.0	19.6	17.3	20.2
15.7	20.0	14.8	15.3	20.3	19.0	21.9	19.3
16.5	21.0	17.8	18.4	18.7	20.7	23.6	23.7
18.0	17.2	19.7	17.3	20.8	13.5	20.2	21.5
19.3	21.3	18.8	16.5	15.4	19.5	18.2	17.8
18.1	16.5	20.5	17.1	17.2	17.4	19.9	19.7
20.0	22.3	22.1	18.8	21.3	19.8	20.6	17.7
17.6	21.0	22.2	18.7	18.3	15.8	14.5	20.0
19.2	21.5	16.9	22.0	18.5	20.7	16.6	22.7
18.7	18.9	20.4	19.4	20.8	18.4	16.9	15.5
20.2	20.7	21.6	20.0	22.0	15.3	20.4	22.0
18.8	16.1	23.2	18.0	17.2	18.2	19.1	16.7
20.2	17.8	17.7	15.9	18.1	12.0	21.1	20.2
18.3	16.5	20.6	20.5	22.2	20.8	22.4	17.9
22.5	18.2	20.9	23.1	16.8	18.4	19.0	21.0
18.5	19.8	18.3	19.2	24.2	22.7	21.1	22.2
14.3	22.5	23.3	17.2	22.2	21.1	17.4	17.4
21.1	23.7	17.3	19.7	18.5	19.8	22.3	18.9
20.9	20.0	17.5	21.6	26.0	22.6	19.9	20.1
21.5	21.0	18.8	16.8	22.3	16.7	21.8	22.1
19.5	21.8	21.1	24.1	19.1	22.2	19.5	28.3
21.5	15.8	24.6	21.2	23.7	19.3	20.3	21.3
18.5	19.1	18.9					

MEAN

VARIANCE

STANDARD  
DEVIATION

19.372

6.288

2.508

## BMTN (AGE 26-30/MALE/TOTAL POINT SCORE/NO FORMAL PROGRAM)

349

226	215	300	275	225	220	259	237
235	284	225	186	203	205	167	242
189	196	270	209	228	237	164	185
225	175	287	254	186	198	202	198
201	238	183	195	184	182	209	205
292	207	234	267	210	174	172	183
180	196	261	271	182	280	207	293
235	220	205	243	249	193	184	211
258	279	203	214	196	236	235	254
261	280	203	300	261	241	216	175
229	201	226	216	212	226	207	254
221	226	246	229	289	243	252	295
195	219	194	266	241	147	221	238
237	190	253	216	224	244	230	220
216	184	233	227	200	218	274	236
221	220	196	257	296	208	198	104
221	290	181	240	201	214	220	247
259	199	284	231	206	189	191	234
133	217	208	218	213	190	217	256
215	206	225	220	214	212	217	220
224	216	270	300	186	218	177	194
227	197	209	159	193	238	232	212
185	236	246	198	200	213	207	226
203	243	288	193	211	210	172	249
211	227	245	220	245	203	232	207
216	272	207	256	226	300	196	203
233	206	213	236	221	196	233	206
240	194	226	218	177	192	204	268
214	237	173	260	193	228	293	211
217	242	249	169	223	174	268	187
251	247	232	225	178	235	219	216
220	241	187	260	192	223	190	200
226	249	300	168	254	189	199	184
224	213	202	215	233	300	300	199
206	235	200	231	300	234	202	181
196	181	193	180	179	219	189	223
170	218	193	207	211	212	254	197
210	198	199	174	246	180	248	215
214	217	231	185	284	271	227	185
300	222	254	274	227	206	209	201
219	197	242	236	237	252	195	195
211	205	230	215	251	287	264	199
241	210	171	215	275	244	300	225
187	186	239	190	244			

MEAN

VARIANCE

STANDARD  
DEVIATION

221.914

1027.372

32.053

## BMPUN (AGE 26-30/MALE/PUSHUP/NO FORMAL PROGRAM)

349

49	42	70	69	50	54	68	38
46	67	58	42	50	45	20	50
40	46	66	40	50	45	34	39
60	40	75	50	46	38	47	38
45	61	38	43	45	38	41	50
70	42	60	67	42	31	38	41
38	45	66	68	38	70	50	71
50	45	45	71	66	33	38	45
67	70	44	45	40	60	52	62
67	60	50	70	57	45	56	35
45	50	49	45	41	59	47	48
55	47	40	50	70	49	56	69
35	50	38	70	53	31	57	53
47	40	47	40	39	45	52	54
49	40	49	48	38	39	58	68
38	48	39	68	66	46	47	40
47	61	38	41	51	41	38	41
45	52	80	51	40	34	38	40
20	40	40	39	48	38	45	44
51	42	41	40	42	36	48	55
50	44	75	68	38	50	30	40
38	40	40	38	41	40	55	56
36	52	59	49	40	39	40	43
42	40	70	40	40	60	40	56
40	57	51	40	38	38	38	45
50	59	45	45	38	67	45	40
48	44	35	40	40	49	41	38
55	40	41	40	33	40	40	46
39	49	32	55	40	48	68	47
35	60	51	26	54	31	71	38
55	50	60	56	27	60	56	45
50	52	38	78	40	63	38	38
40	57	66	50	38	38	53	40
40	40	40	42	55	70	70	41
46	60	42	60	69	40	42	38
40	42	40	28	38	40	40	38
39	40	38	42	42	43	53	39
40	46	39	42	60	40	60	50
39	38	50	43	66	64	55	39
67	52	59	61	68	50	40	43
38	40	66	57	60	50	46	55
60	40	51	46	55	66	66	38
55	40	38	38	61	50	65	38
26	46	50	42	49			

MEAN

VARIANCE

STANDARD  
DEVIATION

46.828

168.401

12.977

## BMSUN (AGE 26-30/MALE/SITUP/NO FORMAL PROGRAM)

349

50	51	70	70	42	61	50	68
56	72	50	45	49	47	48	50
40	41	63	53	45	70	31	43
40	38	70	65	50	51	47	40
52	60	39	45	41	28	55	42
70	46	52	54	56	51	38	40
40	40	65	55	39	70	48	67
57	48	50	48	50	39	38	50
61	67	48	53	40	61	59	88
70	63	43	67	62	44	40	43
67	55	55	60	40	47	42	59
46	60	65	60	67	59	61	67
40	49	42	62	61	25	45	65
44	44	61	51	50	68	47	50
45	40	50	56	38	57	67	65
42	57	43	41	65	45	50	40
43	69	38	55	44	48	44	61
63	41	70	42	40	42	40	50
24	60	45	48	46	38	50	70
45	48	40	39	33	50	45	42
50	48	48	70	34	38	45	53
45	45	40	22	50	68	48	52
40	40	59	45	40	41	50	47
40	60	70	45	45	38	38	52
52	99	60	50	64	45	50	43
42	100	45	72	50	69	39	45
50	45	41	60	42	56	48	40
50	40	41	55	38	45	40	70
45	43	40	58	46	42	67	56
40	57	54	37	53	50	55	38
60	53	60	49	40	50	49	60
53	67	42	70	40	45	43	58
50	45	67	40	41	40	40	40
40	60	35	48	55	68	69	50
46	49	41	37	65	50	48	50
39	40	40	30	38	52	44	50
40	50	49	44	42	53	66	40
40	41	40	37	60	41	63	50
50	65	50	43	67	71	50	41
68	48	63	62	50	43	37	40
58	45	57	53	36	70	50	58
38	46	53	60	56	70	83	39
60	39	40	50	68	50	68	43
45	41	50	42	60			

MEAN

VARIANCE

STANDARD  
DEVIATION

50.249

124.119

11.141



## BMRUN (AGE 26-30/MALE/2 MILE RUN/NO FORMAL PROGRAM)

349

15.5	16.0	13.1	16.4	14.4	19.2	15.1	16.1
14.8	15.3	17.2	19.5	18.5	17.2	18.3	13.7
17.6	17.6	16.1	16.8	14.7	17.0	18.4	18.6
16.7	19.9	15.1	15.1	21.5	17.6	17.8	16.3
18.5	18.0	17.9	18.2	19.8	16.1	17.2	16.1
14.4	16.4	16.8	14.5	17.3	21.3	20.1	18.5
18.5	17.1	17.7	14.1	18.3	15.8	17.7	14.2
15.5	15.4	17.5	16.3	16.1	16.1	17.8	16.8
17.0	15.9	17.3	16.8	16.5	18.5	16.2	18.0
18.2	12.3	17.5	13.7	14.7	15.0	16.6	20.0
18.2	20.3	16.1	17.8	15.1	16.9	16.2	13.4
16.5	17.0	18.0	17.0	14.8	18.0	15.4	14.0
16.5	16.3	16.7	16.3	16.0	19.6	16.9	17.4
15.7	18.0	15.4	17.0	15.9	16.3	15.1	16.8
16.1	18.5	14.7	16.0	15.8	16.2	14.8	14.1
13.7	17.0	17.1	14.1	12.2	16.7	17.8	18.5
15.1	12.8	18.4	13.8	18.3	15.8	14.1	13.7
12.8	18.1	15.5	14.2	15.6	16.8	17.2	13.2
18.9	17.2	16.1	15.0	16.5	17.1	16.0	14.7
16.2	17.0	13.7	12.8	13.5	15.6	15.8	16.1
15.6	16.6	12.6	12.8	16.6	15.2	19.0	19.2
13.4	17.4	15.3	17.9	19.0	16.4	15.3	19.0
17.7	13.0	16.3	18.6	16.3	14.8	16.8	19.5
16.2	14.0	14.9	17.8	15.6	18.1	20.6	19.1
16.5	16.7	15.2	15.1	14.6	16.5	12.7	16.5
15.9	15.1	16.7	14.9	14.2	12.9	17.3	16.6
14.5	16.8	14.3	14.9	14.1	17.2	13.5	15.4
14.7	17.0	13.6	16.0	18.1	18.0	15.9	12.5
15.2	15.7	19.1	12.8	18.0	14.1	14.3	17.8
14.4	16.7	13.3	18.1	16.9	20.0	13.9	17.4
15.0	13.1	17.3	16.6	16.4	15.4	17.1	17.4
16.7	17.4	17.6	19.0	17.4	17.0	17.6	19.1
14.5	12.8	13.5	23.0	19.9	17.4	18.2	18.5
13.3	17.7	15.2	13.8	16.1	13.6	12.2	17.9
15.8	16.4	16.7	14.0	13.1	11.7	17.3	20.8
16.6	19.5	17.1	15.2	18.7	15.5	18.3	14.5
21.3	15.3	17.9	16.2	15.4	16.7	14.6	16.6
15.1	16.5	16.3	20.2	15.7	19.3	17.3	17.0
16.3	18.3	15.1	19.2	15.4	16.5	16.2	18.4
13.5	16.1	16.3	15.5	18.7	17.0	14.9	16.6
16.3	17.3	18.0	16.3	14.2	15.9	19.9	22.1
18.0	16.5	15.7	18.3	14.0	15.1	17.8	16.2
15.0	15.1	20.9	15.4	14.1	13.0	13.1	11.9
16.8	19.1	14.1	17.8	15.1			

MEAN

VARIANCE

STANDARD  
DEVIATION

16.356

3.831

1.957

## BFTPN (AGE 26-30/FEMALE/TOTAL POINT SCORE/NO FORMAL PROGRAM)

168

184	203	260	205	132	204	221	243
249	244	245	191	246	268	213	239
258	221	206	272	274	172	210	215
244	178	241	239	200	296	226	254
198	208	218	298	251	253	290	192
284	211	190	276	236	220	254	258
237	253	238	237	250	243	186	230
282	276	266	253	261	196	280	248
198	280	187	300	221	190	201	212
225	298	235	212	220	271	286	262
238	266	190	195	254	175	300	203
216	213	224	198	200	256	267	266
300	232	284	230	245	229	213	182
197	204	187	222	252	235	300	196
211	241	178	243	208	267	204	182
238	186	196	210	185	204	251	230
190	260	290	235	300	282	204	245
268	284	300	222	259	189	300	221
191	242	238	217	203	240	188	207
274	272	208	215	201	245	300	209
214	236	231	218	280	228	300	189

MEAN

VARIANCE

STANDARD  
DEVIATION

233.464

1237.963

35.185

## BFPUN (AGE 26-30/FEMALE/PUSHUP/NO FORMAL PROGRAM)

168

16	25	58	24	15	27	19	16
16	32	28	25	19	40	28	16
35	15	26	38	44	16	20	16
17	18	30	16	22	36	30	38
16	28	16	38	30	24	40	17
30	30	15	35	29	25	33	33
29	37	39	33	30	39	19	28
40	38	41	42	38	22	36	15
24	35	18	51	20	16	17	35
30	38	22	28	26	24	31	28
27	34	18	15	18	16	37	25
19	20	20	17	20	30	20	40
40	28	30	17	20	21	15	17
25	20	36	30	30	20	38	19
50	20	20	37	22	42	16	15
25	17	15	20	20	15	31	17
17	15	35	30	39	30	21	24
25	30	38	25	16	18	39	22
19	25	25	18	20	32	20	22
32	34	21	16	36	18	65	27
20	25	23	20	38	20	40	15

MEAN

VARIANCE

STANDARD  
DEVIATION

26.476

88.933

9.430

## BFSUN (AGE 26-30/FEMALE/SITUP/NO FORMAL PROGRAM)

168

27	34	51	25	35	28	49	47
50	47	51	32	65	51	37	51
65	74	35	37	42	30	40	33
50	32	49	52	34	64	25	48
37	24	30	56	58	42	46	30
53	30	30	55	47	33	45	47
30	40	29	38	41	42	23	37
43	39	43	34	42	30	51	47
28	52	26	65	33	33	26	35
41	50	44	28	40	51	52	51
41	68	28	40	61	26	59	28
27	40	35	47	40	42	42	45
65	40	60	41	50	28	43	30
23	35	45	27	39	30	51	29
45	50	28	42	37	32	32	28
51	28	34	20	30	40	61	50
30	65	61	46	52	31	40	46
57	51	68	43	50	30	51	33
30	51	31	42	40	50	39	33
60	41	42	48	51	50	80	26
30	40	40	30	51	47	65	44

MEAN

VARIANCE

STANDARD  
DEVIATION

41.934

137.331

11.719

## BFRUN (AGE 26-30/FEMALE/2 MILE RUN/NO FORMAL PROGRAM)

168

22.2	22.3	22.3	19.8	31.7	21.5	22.2	18.0
17.9	21.4	21.0	24.5	18.8	20.3	22.0	19.2
21.3	22.2	22.5	17.2	17.9	25.1	21.2	18.5
18.7	25.6	21.9	19.4	20.4	17.1	19.0	22.5
21.3	20.1	17.9	17.6	20.6	16.3	15.5	20.2
17.0	21.9	21.2	19.0	21.9	19.5	19.7	19.6
18.1	18.9	19.8	19.6	18.6	19.0	20.9	19.3
17.5	17.3	18.9	18.5	17.0	21.4	19.8	17.7
21.4	19.4	21.6	17.3	18.3	22.2	19.4	24.9
22.2	16.8	19.1	20.4	20.8	16.7	17.3	19.0
19.0	19.0	21.0	20.9	17.7	23.8	16.4	23.1
18.2	20.0	20.3	26.1	22.8	18.4	16.9	19.4
16.6	19.8	16.2	18.4	18.9	15.6	20.3	23.4
20.8	20.3	18.2	19.7	17.9	17.2	15.8	20.2
16.9	19.4	24.6	21.6	20.1	17.4	19.9	22.7
21.5	22.1	20.9	20.7	18.8	20.9	19.9	18.3
21.8	17.4	15.9	22.4	15.4	17.6	22.0	18.9
17.9	17.0	16.6	21.5	17.5	22.2	17.2	18.4
21.8	20.3	17.5	21.9	22.5	23.6	23.3	24.7
18.7	22.7	22.4	22.3	17.0	18.8	17.0	20.0
19.4	22.2	21.4	23.8	19.1	21.7	17.0	26.2

MEAN

VARIANCE

STANDARD  
DEVIATION

19.982

6.267

2.503

## CMTPN (AGE 31-35/MALE/TOTAL POINT SCORE/NO FORMAL PROGRAM)

221

208	235	243	202	266	182	207	177
244	229	207	300	290	300	227	280
174	212	213	279	294	192	203	215
223	300	212	229	199	197	200	170
224	276	266	246	181	195	205	224
282	259	217	208	210	255	192	186
186	212	226	202	273	247	200	210
202	227	196	210	300	203	243	275
218	195	260	211	199	209	205	183
193	187	193	172	191	231	255	244
218	194	300	234	267	175	209	236
224	198	265	182	212	109	194	212
212	215	206	191	189	219	183	218
226	188	211	208	219	273	166	214
194	243	209	189	153	230	200	201
217	300	221	184	291	186	244	215
207	208	300	243	197	250	267	189
300	254	223	196	194	184	191	267
199	211	193	191	203	174	197	221
209	189	214	226	183	212	193	220
191	240	235	188	210	222	193	213
249	288	236	300	248	193	214	160
257	198	188	181	205	200	174	178
188	179	192	190	228	213	265	300
185	225	191	220	244	184	203	175
186	252	201	223	209	300	300	260
254	287	267	270	282	227	282	300
244	224	193	223	215			

MEAN

VARIANCE

STANDARD  
DEVIATION

220.742

1292.310

35.949

CMPUN (AGE 31-35/MALE/PUSHUP/NO FORMAL PROGRAM)

221

40	38	44	39	51	40	50	40
39	38	38	71	65	62	40	68
38	35	52	54	58	37	54	49
47	62	40	85	40	40	40	28
62	62	62	43	35	42	43	40
60	68	37	45	53	65	35	36
35	48	49	38	68	60	38	52
47	55	36	40	68	40	52	65
45	43	53	49	40	44	39	38
33	34	39	45	33	41	56	55
38	20	62	48	60	36	47	50
34	36	40	33	40	40	40	33
37	40	44	29	36	38	36	49
36	36	35	36	43	46	39	36
38	51	42	42	30	42	37	38
39	68	33	33	67	28	37	38
39	40	61	50	35	62	60	34
71	43	40	37	37	34	38	55
35	33	36	45	38	36	33	38
42	33	36	36	35	46	34	40
33	42	49	36	40	41	35	38
48	63	32	63	57	40	48	37
60	40	36	33	35	37	36	35
39	38	36	35	55	40	42	92
35	50	40	40	25	30	44	35
34	63	46	48	40	40	61	29
27	67	20	53	58	36	69	62
43	50	36	45	33			

MEAN

VARIANCE

STANDARD  
DEVIATION

43.919

130.593

11.428

## CMSUN (AGE 31-35/MALE/SITUP/NO FORMAL PROGRAM)

221

39	60	57	39	58	36	37	40
60	40	40	71	60	66	36	68
19	51	46	62	65	42	46	50
51	65	38	44	48	45	46	32
36	52	60	52	35	42	45	45
69	49	48	51	40	57	45	39
36	54	45	50	65	56	36	38
42	48	48	50	78	43	47	60
39	37	63	50	46	50	43	38
40	38	37	36	37	53	61	51
46	50	65	42	45	36	48	44
39	48	64	36	55	45	38	48
50	50	46	38	43	50	40	43
39	42	41	38	41	65	22	39
40	57	44	50	24	39	39	38
48	75	37	36	65	45	55	55
39	38	75	43	36	52	60	41
75	69	45	46	40	40	42	65
40	52	40	46	46	40	40	40
36	36	46	60	41	44	38	37
39	49	45	36	42	50	40	50
50	72	70	70	48	39	47	34
59	38	37	36	39	44	37	37
33	33	43	38	45	46	65	77
36	37	40	51	39	38	46	43
40	53	38	43	45	90	67	42
41	66	39	62	62	68	55	62
61	50	46	46	50			

MEAN

VARIANCE

STANDARD  
DEVIATION

47.294

124.845

11.173



## CMRUN (AGE 31-35/MALE/2 MILE RUN/NO FORMAL PROGRAM)

221

16.5	16.1	15.2	17.0	14.2	19.2	17.7	22.0
15.3	13.7	16.5	13.3	12.3	14.0	13.3	16.2
16.5	16.8	18.8	15.5	13.8	18.8	21.8	18.1
16.9	14.3	15.8	18.9	19.1	19.0	18.4	18.5
18.2	14.3	16.6	13.9	19.0	19.2	17.9	15.3
15.7	15.4	15.8	18.8	18.7	17.3	19.0	19.1
18.2	19.3	16.1	18.5	17.0	17.5	16.8	17.9
18.7	17.8	18.9	17.5	13.0	17.5	15.0	15.6
17.8	18.2	16.2	19.0	18.7	18.4	17.2	17.9
17.5	18.3	18.1	17.5	17.5	16.7	17.0	16.1
15.8	16.7	12.6	16.0	13.0	20.7	18.5	15.1
14.0	18.5	12.7	18.9	18.1	17.2	18.2	16.2
16.9	16.9	18.1	18.6	19.4	16.3	19.9	16.9
19.3	19.4	15.7	15.9	15.7	13.4	18.8	15.3
18.2	16.3	17.2	22.3	19.9	14.5	17.1	16.9
16.5	13.1	13.4	18.2	15.0	18.9	13.2	17.4
16.5	16.4	13.5	13.1	16.5	16.5	16.3	18.6
12.0	15.8	15.5	18.7	17.9	19.0	17.4	14.2
18.5	16.9	17.9	17.8	17.8	20.7	17.4	14.8
16.1	17.6	16.1	16.1	19.8	17.3	17.5	17.5
17.8	14.5	15.0	18.1	16.6	18.4	17.8	15.8
13.4	15.3	15.6	14.0	15.7	18.4	17.6	23.4
17.3	17.5	18.2	18.9	16.2	17.6	21.0	20.0
17.6	19.2	18.9	17.9	17.4	16.7	14.6	13.0
18.6	18.6	19.2	16.2	23.5	18.4	17.1	22.2
19.0	16.9	18.0	16.1	17.0	17.8	13.1	22.8
22.8	15.4	18.5	14.8	14.5	18.5	14.7	15.4
16.1	17.2	19.2	16.0	16.1			

MEAN

VARIANCE

STANDARD  
DEVIATION

17.071

4.553

2.134

## CFTPN (AGE 31-35/FEMALE/TOTAL POINT SCORE/NO FORMAL PROGRAM)

84

184	250	217	276	282	239	248	234
298	239	272	300	300	271	258	235
227	288	252	262	249	300	247	222
264	256	248	300	286	236	250	276
280	256	300	296	217	268	251	300
258	229	239	234	168	252	186	215
300	267	227	267	233	272	224	235
262	177	251	241	239	272	202	260
182	139	198	222	221	227	256	204
269	269	210	239	274	272	254	262
270	290	233	240				

MEAN

VARIANCE

STANDARD  
DEVIATION

248.512

1115.024

33.392

## CFPUN (AGE 31-35/FEMALE/PUSHUP/NO FORMAL PROGRAM)

84

29	21	33	36	36	15	25	35
40	36	25	50	56	40	29	19
18	34	20	30	36	40	18	22
40	32	36	36	35	15	22	25
31	29	41	42	20	19	36	36
37	20	19	21	08	35	15	22
50	18	16	19	19	28	20	15
25	14	18	19	16	22	16	14
40	13	15	15	14	16	36	15
19	19	15	20	38	40	22	30
25	37	20	14				

MEAN

VARIANCE

STANDARD  
DEVIATION

26.274

107.286

10.358

## CFSUN (AGE 31-35/FEMALE/SITUP/NO FORMAL PROGRAM)

84

12	40	23	33	60	41	37	28
40	25	38	46	58	27	35	28
23	42	40	33	25	41	40	23
35	45	30	44	55	40	40	49
34	28	49	39	30	68	27	60
28	32	31	32	20	28	25	25
50	55	35	40	40	40	40	34
31	23	41	45	39	56	23	42
36	26	25	46	38	35	43	25
46	44	27	38	37	41	41	43
35	42	38	31				

MEAN

VARIANCE

STANDARD  
DEVIATION

36.940

104.032

10.200

## CFRUN (AGE 31-35/FEMALE/2 MILE RUN/NO FORMAL PROGRAM)

84

24.4	21.5	24.1	19.7	21.0	21.6	22.3	23.9
15.2	22.5	19.2	17.2	15.3	18.9	21.0	19.7
17.3	20.1	20.8	20.5	20.7	18.3	20.9	20.4
21.7	24.0	22.7	16.8	20.4	21.8	22.0	19.6
18.3	19.7	17.9	17.3	25.0	18.0	19.4	18.7
20.9	22.3	20.0	21.8	22.3	21.7	24.6	22.8
17.5	16.1	21.1	17.5	20.8	20.4	25.1	20.4
18.8	24.8	18.9	22.7	21.3	19.4	21.5	17.5
18.8	25.1	22.9	24.0	20.9	22.1	22.7	21.2
16.9	18.6	21.6	22.3	22.7	22.6	21.5	21.6
18.5	20.1	23.0	17.0				

MEAN

VARIANCE

STANDARD  
DEVIATION

20.644

5.571

2.360

## DMTPN (AGE 36-39/MALE/TOTAL POINT SCORE/NO FORMAL PROGRAM)

119

300	182	204	211	300	166	166	198
193	209	208	214	232	300	275	213
202	227	260	199	181	202	253	300
255	206	186	215	272	224	183	231
207	200	194	214	220	198	213	193
201	199	216	201	223	232	268	260
200	183	213	220	261	243	300	268
228	206	200	207	200	185	200	227
189	195	214	193	202	210	191	159
205	208	187	174	266	202	270	233
195	189	300	192	196	190	241	246
270	300	156	199	230	179	213	189
228	292	284	274	183	178	300	286
230	191	300	206	210	211	191	213
300	191	204	182	228	266	199	

MEAN

VARIANCE

STANDARD  
DEVIATION

220.815

1384.491

37.209

DMPUN (AGE 36-39/MALE/PUSHUP/NO FORMAL PROGRAM)

119

75	33	32	50	60	53	33	41
35	47	38	38	45	60	61	32
39	60	50	39	32	36	58	61
60	37	36	42	55	47	36	49
50	39	38	51	45	33	40	39
33	35	44	39	48	43	40	55
39	33	42	43	54	50	70	60
36	39	40	50	37	32	32	62
32	35	40	33	40	41	33	20
42	35	34	33	50	34	42	35
42	33	61	32	33	42	39	40
54	66	32	35	32	35	45	35
50	61	52	60	34	34	65	53
40	37	61	40	46	45	37	34
68	36	32	36	34	56	40	

MEAN

VARIANCE

STANDARD  
DEVIATION

43.252

112.732

10.618

DMSUN (AGE 36-39/SITUP/MALE/NO FORMAL PROGRAM)

119

75	35	41	41	65	36	28	39
34	45	34	41	50	63	63	55
37	34	53	44	35	42	60	69
60	43	36	43	61	51	32	56
39	44	36	45	53	50	41	40
52	40	51	44	51	55	44	44
45	35	50	49	47	49	69	42
50	44	39	40	39	35	36	40
45	40	40	40	37	44	40	36
45	38	37	39	56	40	63	60
34	37	64	41	40	34	63	52
54	70	31	34	44	40	40	40
50	65	63	53	34	34	80	65
50	35	63	47	45	52	40	37
70	39	50	36	40	60	44	

MEAN

VARIANCE

STANDARD  
DEVIATION

46.294

117.30

10.836



## DMRUN (AGE 36-39/MALE/2 MILE RUN/NO FORMAL PROGRAM)

119

14.2	19.6	16.8	18.6	12.8	23.2	20.5	18.8
17.6	19.2	16.2	16.3	16.1	14.4	17.0	17.8
17.4	18.1	12.3	19.2	19.5	17.6	19.0	12.5
19.4	17.4	19.4	16.9	15.8	17.4	19.0	18.1
19.2	19.0	18.3	19.1	18.0	19.3	16.7	19.5
19.2	17.6	18.0	18.7	17.9	16.8	16.7	14.4
19.2	19.5	18.1	17.3	13.9	15.8	13.5	13.0
15.2	17.8	18.3	19.5	17.8	18.9	16.7	19.4
20.1	18.4	16.4	18.3	17.7	17.6	18.8	21.9
18.7	16.3	19.2	21.2	14.5	17.2	12.8	16.9
18.6	18.5	14.7	18.5	17.9	19.5	21.9	14.9
14.7	12.7	23.9	16.8	14.1	22.2	17.2	19.6
17.4	15.5	14.8	15.3	19.0	20.5	13.3	14.5
15.8	18.9	14.7	18.6	18.5	19.5	19.6	15.8
13.7	19.2	17.9	21.2	14.9	16.5	19.5	

MEAN

VARIANCE

STANDARD  
DEVIATION

17.535

5.414

2.327

DFTPN (AGE 36-39/FEMALE/TOTAL POINT SCORE/NO FORMAL PROGRAM)

28

236	279	275	226	270	279	272	259
291	291	300	300	258	292	280	257
283	216	244	256	233	268	244	264
282	269	264	200				

MEAN

VARIANCE

STANDARD  
DEVIATION

263.857

631.460

25.129

DFPUN (AGE 36-39/FEMALE/PUSHUP/NO FORMAL PROGRAM)

28

13	23	30	14	19	23	30	25
27	27	30	36	13	38	28	23
27	15	20	13	21	18	16	17
26	25	20	00				

MEAN

VARIANCE

STANDARD  
DEVIATION

22.036

63.962

7.998

DFSUN (AGE 36-39/FEMALE/SITUP/NO FORMAL PROGRAM)

28

21	31	21	35	40	42	33	35
32	45	36	39	42	33	45	25
49	27	29	32	21	31	42	35
36	30	31	31				

MEAN

VARIANCE

STANDARD  
DEVIATION

33.893

53.879

7.340

DFRUN (AGE 36-39/FEMALE/2 MILE RUN/ NO FORMAL PROGRAM)

28

20.0	19.4	19.9	24.8	17.8	20.4	24.0	23.8
19.9	17.0	20.0	18.4	20.8	21.6	22.4	20.2
21.4	24.2	22.8	20.9	20.8	22.8	19.3	20.9
21.0	21.8	21.3	19.4				

MEAN

VARIANCE

STANDARD  
DEVIATION

20.964

3.619

1.902

## BIBLIOGRAPHY

Books

Cooper, Kenneth H. M.D. The New Aerobics, M. Evans and Company Inc., New York, 1970.

Daniel, Wayne W. Biostatistics: A Foundation for Analysis In The Health Sciences. 2nd ed. New York: John Wiley and Sons Inc, 1978.

Knowles, John H., M.D. "The Responsibility of the Individual." Doing Better and Feeling Worse - Health in the United States. W.W. Norton and Company, Inc., New York, 1977.

Periodicals

Apodaca, J. "Is Physical Fitness a Fad?" American Pharmacy 19 (April 1979): 36-6.

Behrens, Ruth; Lee, Elizabeth; and Longe, Mary. "Past Year Saw Large Increase in Number of Hospital Programs," Hospitals (April 1, 1981): 105-110.

Buxbaum, Robert, and O'Connor, Ronald. "Fitness Trails," The New England Journal of Medicine 296 (March 24, 1977): 690-691.

Cantu, R.C. "Joint Fitness Program Benefits Business and Hospital Employees," Hospitals 50 (10 May 1984): 46.

Chenoweth, David. "Fitness Program Evaluation: Results With Muscle." Occupational Health And Safety (June 1983): 14-42.

Chenoweth, David. "Health Promotion: Benefits vs Costs." Occupational Health and Safety (July 1983): 37-41.

Carroll, V.A. "Employee Fitness Programs: An expanding Concept." International Journal of Health Education 23, No.1 (1980): 35-41.

Cunningham, Robert M. "Wellness at Work: Not Just a Passing Fancy." Hospitals 56 (1 June 1982): 82-90.

Fielding, Johnathan E. "Effectiveness of Employee Health Improvement Programs." Journal of Occupational Medicine 24 (November 1982): 907-916.

- Friedman, Bonnie J., and Knight, Katherine. "Running for Life, Health, and Pleasure." American Journal of Nursing 78 (April 1978): 602-607.
- Froelicher, V. "Exercise and Health." The American Journal of Medicine 70 (May 1981): 987-988.
- Greenberg, Mark A.; Arbeit, Sidney; and Rubin, Iva L.: The Role of Physical Training of Patients With Coronary Artery Disease." American Heart Journal 97 (April 1979): 527-533.
- Haggerty, R.J. "Changing Lifestyle to Improve Health." Preventive Medicine 6 (1977): 276-289.
- Gunby, Phil. "Donald Cooper - Coping With The New Fitness." Journal of the American Medical Association 241 (30 March 1979): 1319-1320.
- Israel, Richard G.; Davidson, Paul C.; Albrink, Margaret J.; and Krall, John M. "Exercise Effects on Fitness,, Lipids, Glucose Tolerance and Insulin Levels in Young Adults." Archives of Physical Medicine and Rehabilitation 62 (July 1981): 336-341.
- Lambert, Craig A.; Netherton, David R.; Finison, Lorenz J.; Hyde, James N.; and Spaight, Sharon J. "Risk Factors and Life Style: A Statewide Health-Interview Survey." The New England Journal of Medicine 306 (29 April 1982): 1048-1051.
- Leach, Robert E. "Rx Exercise: Effects and Side Effects." Hospital Practice (January 1981): 72A-72W.
- Lilley, Margaret. "Preventive Medicine and the Benefit of Exercise Programmes for the Sedentary Worker." Physiotherapy 69 (January 1983): 8-10.
- Lindsey-Reid, Elizabeth, and Osborne, Richard W. "Readiness for Exercise Adoption." Social Science and Medicine 14 No.2 (1980): 139-147.
- Meade, William F., and Hartwig, Rick. "Fitness Evaluation and Exercise Prescription." The Journal of Family Practice 13 (July 1981): 1039-1050.
- Milhorn, H.T., Jr. "Cardiovascular Fitness." American Family Physician 26 (September 1982): 163-9.
- Nast, Paul F. "Promoting Employees Fitness Programs." Hospital Progress 60 (November 1979): 34, 38.
- Nast, Paul F., and McDonald, Lucille. "Planning the Employee Fitness Program." Occupational Health and Safety (October 1981): 27-29.

Oelbaum, C.H. "Hallmarks of Adult Wellness." American Journal of Nursing 74 (September 1974): 1623-1625.

Peters, Ruth K.; Cady, Lee D.; and Bischoff, David P. "Physical Fitness and Subsequent Myocardial Infarction in Healthy Workers." Journal of the American Medical Association 249 (10 June 1983): 3052-3056.

Pope, Clyde R. "Life-Styles, Health Status and Medical Care Utilization." Medical Care 20 (April 1982): 402-413.

Reinertsen, James. "Promoting Health is Good Business." Occupational Health and Safety (June 1983): 18-22.

Shepherd, Roy J. "Fitness Programs Reduces Health Care Costs." Dimensions in Health Service. 59 (January 1982): 14-15.

Shepherd, Roy J.; Corey, Paul; Renzland, Peter; and Cox Michael. "The Impact of Changes in Fitness and Lifestyle Upon Health Care Utilization." Canadian Journal of Public Health 74 (January/February 1983): 51-55.

Shepherd, Roy J.; Corey, Paul; Renzland, Peter; and Cox, Michael. "The Influence of an Employee Fitness and Lifestyle Modification Program Upon Medical Care." Canadian Journal of Public Health 73 (July/August 1982): 259-262.

Shepherd,, Roy J. "Physical Activity and the Healthy Mind." Canadian Medical Association Journal 128 (1 March 1983): 525-530.

Strasser, A.L. "Health Maintenance: A Personal Responsibility." Occupational Health and Safety. 50 (1981): 9.

Tolloch, Judith W., and Healy, Christine C. "Changing Lifestyles: A Wellness Approach." Occupational Health Nursing 30 (30 June 1982): 13-21.

Williams, Paul T.; Wood, Peter D.; Haskell, William L.; and Vranizan, Karen. "The Effects of Running Mileage and Duration on Plasma Lipoprotein Levels." Journal of the American Medical Association 247 (21 May 1982): 2674-2679.

Wright, C. Craig. "Cost Containment Through Health Promotion Programs." Journal of Occupational Medicine 24 (December 1982): 965-968.

#### Unpublished Material

Letter, Office of The Surgeon General (DASG-PSF) to Commander, FARMC, subject: Physical Fitness, October 1983.



Letter, 7th Medical Command, (AEMPS) to Commander, FARMC, subject: Physical Fitness, 29 November 1982.

Phillips, E.P., Jr. "A Comparative Analysis of the Level of Physical Fitness Between the 97th General Hospital and the 45th Medical Battalion." Baylor University, December 1983.

### Interviews

Diniega, Benedict M., Major, M.D., Chief, Preventive Medicine Activity, Frankfurt Army Regional Medical Center, Frankfurt, West Germany. Interview, 3 January 1984.

Plunkett, G.D., Colonel, ACOS Professional Services, 7th Medical Command, USAREUR; Heidelberg, West Germany. Interview 11 April 1984.

Wiggins, David E., Lieutenant Colonel, Chief, Comptroller Division, Frankfurt Army Regional Medical Center, Frankfurt, West Germany. Interview, 7 January 1984.

### Government Publications

U.S. Department of the Army. Physical Readiness Training. Field Manual No. 21-20, Washington, D.C.: Government Printing Office, 31 October 1980.

U.S. Department of the Army. The Army Physical Fitness Program. Army Regulation 350-15, with Change 1. Washington, D.C.: U.S. Government Printing Office, 15 July 1982.

U.S. Department of the Army. The Commander's Handbook on Physical Fitness. DA Pamphlet 350-15. Washington, D.C.: Government Printing Office, 15 October 1982.

U.S. Department of the Army. The Individual's Handbook on Physical Fitness. DA Pamphlet 350-18. Washington, D.C.: Government Printing Office, 1 May 1983.